

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Visit our website - *Click HERE*

40-592 User Manual

PXI BRIC™ High Density FIBO Matrix Module



Issue 5.8 February 2020

© COPYRIGHT (2020) PICKERING INTERFACES. ALL RIGHTS RESERVED.

No part of this publication may be reproduced, transmitted, transcribed, translated or stored in any form, or by any means without the written permission of Pickering Interfaces.

Technical details contained within this publication are subject to change without notice.



ISO 9001
Reg No. FM38792

TECHNICAL SUPPORT

For Technical Support please contact Pickering Interfaces either by phone, the website or via e-mail.

WARRANTY

All products manufactured by Pickering Interfaces are warranted against defective materials and workmanship for a period of three years, excluding programmable power supplies, from the date of delivery to the original purchaser. Any product found to be defective within this period will, at the discretion of Pickering Interfaces be repaired or replaced.

Products serviced and repaired outside of the warranty period are warranted for ninety days.

Extended warranty and service are available. Please contact Pickering Interfaces by phone, the website or via e-mail.

ENVIRONMENTAL POLICY

Pickering Interfaces operates under an environmental management system similar to ISO 14001.

Pickering Interfaces strives to fulfil all relevant environmental laws and regulations and reduce wastes and releases to the environment. Pickering Interfaces aims to design and operate products in a way that protects the environment and the health and safety of its employees, customers and the public. Pickering Interfaces endeavours to develop and manufacture products that can be produced, distributed, used and recycled, or disposed of, in a safe and environmentally friendly manner.

Worldwide Technical Support and Product Information

pickeringtest.com

Pickering Interfaces Headquarters

Stephenson Road Clacton-on-Sea CO15 4NL United Kingdom
Tel: +44 (0)1255-687900
E-Mail: sales@pickeringtest.com

USA
Tel: (West) +1 541 471 0700
Tel: (East) +1 781 897 1710
E-mail: ussales@pickeringtest.com

France
Tel +33 9 72 58 77 00
E-mail frsales@pickeringtest.com

Germany
Tel: +49 89 125 953 160
E-mail: desales@pickeringtest.com

Sweden
Tel: +46 340-69 06 69
E-mail: ndsales@pickeringtest.com

Czech Republic
Tel: +420 558 987 613
E-mail: desales@pickeringtest.com

China
Tel: +86 4008 799 765
E-mail: chinasales@pickeringtest.com

PRODUCT SAFETY

SAFETY SYMBOLS

The following safety symbols may be used on the product and throughout the product documentation.

MEANING / DESCRIPTION	SYMBOL
PROTECTIVE EARTH (GROUND) To identify any terminal which is intended for connection to an external conductor for protection against electric shock in case of a fault, or the terminal of a protective earth (ground) electrode.	
DANGEROUS VOLTAGE To indicate hazards arising from dangerous voltages.	
WARNING / CAUTION An appropriate safety instruction should be followed or caution to a potential hazard exists. Refer to the relevant instructions detailed within the product manual.	
HEAVY If this product is heavy reference should be made to the safety instructions for provisions of lifting and moving.	
STATIC SENSITIVE To indicate that static sensitive devices are present and handling precautions should be followed.	

CONTENTS

Copyright Statement II

Technical Support and Warranty.....III

Product Safety IV

Contents (this page).....V

Warnings and Cautions VII

Section 1
Technical Specification.....1.1

Section 2
Technical Description 2.1
- Mechanical Description 2.1
- Functional Description 2.2
- Fault Insertion Examples Using The FIBO Matrix 2.4

Section 3
Installation.....3.1
- Pre Operation Checks.....3.1
- Hardware Installation 3.2
- Software Installation 3.2
- Testing Operation 3.3

Section 4
Programming Guide.....4.1
- Programming Options for PXI Modules 4.1

Section 5
Connector Information.....5.1

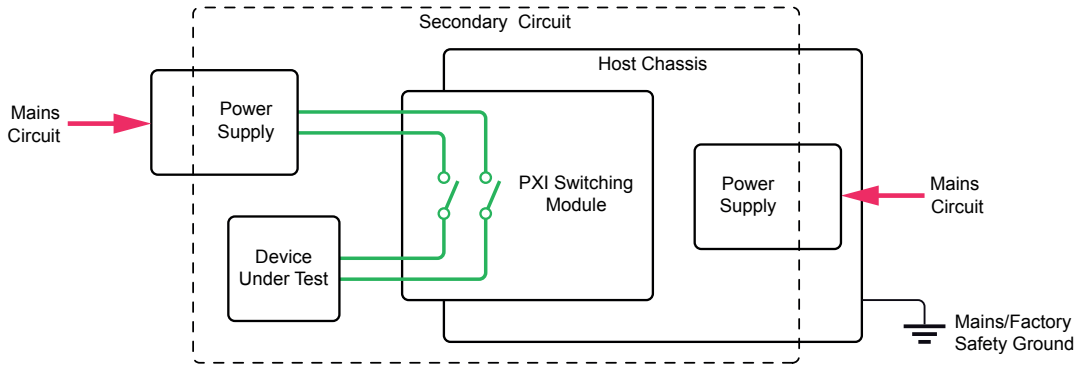
Section 6
Trouble Shooting.....6.1

Section 7
Maintenance Information.....7.1
- Fuse 7.1
- Relay Look-Up Tables 7.2
- PCB Layout Diagrams.....7.27
- Card Removal From BRIC.....7.32
- Card Replacement.....7.34

THIS PAGE INTENTIONALLY BLANK

WARNINGS AND CAUTIONS

WARNING - HAZARDOUS ENVIRONMENTS	SYMBOL
This product is not specifically designed for use in hazardous environments, for example in explosive atmospheres. If the product is to be used in hazardous environments we recommend that the user ensures suitable protective measures are taken.	

WARNING - DANGER OF ELECTRIC SHOCK	SYMBOL
This module may contain hazardous voltages. Before removing the module from the rack remove all supplies and disconnect user I/O signals. Unused slots in the host chassis are populated with blanking plates to prevent access to user I/O signals that may be present. Blanking panels are available to order from Pickering in a variety of slot widths. If the product is not used in this manner for example by using an extender card then additional care must be taken to avoid contact with exposed signals. Not to be used in safety critical circuits, refer to the Pickering Interfaces' terms & conditions of sale. This module must not be used for the switching of Mains Circuits. For the switching of voltages up to the module's full specification, Secondary Circuit power supplies and the Device Under Test must be fully isolated from the Mains Circuit and the safety earth. The host chassis must be correctly installed and be connected to mains or factory safety ground, please refer to your chassis installation manual.  **Diagram Showing Separation Between The Mains Circuit and Secondary Circuit / DUT** For the purposes of this document, a Mains Circuit is an installation classified as Overvoltage Category II up to 300V. Separation between the Secondary Circuit and Mains Circuit is achieved by a transformer in which the primary windings are separated from the secondary windings by reinforced insulation, double insulation, or a screen connected to the protective conductor terminal.	

CAUTION - HANDLING OF ELECTROSTATIC-SENSITIVE DEVICES	SYMBOL
Certain semiconductor devices used in this equipment are liable to damage due to static voltage. Observe the following precautions when handling these devices in their unterminated state, or sub-assemblies containing these devices: 1. Persons removing sub-assemblies from equipment using these devices must be earthed by a wrist strap and a resistor at the point provided on the equipment. 2. Soldering irons used during the repair operations must be low voltage types with earthed tips and isolated from the mains voltage by a double insulated transformer. 3. Outer clothing worn must be unable to generate static charges. 4. Printed Circuit Boards (PCBs) fitted with these devices must be stored and transported in anti-static bags.	

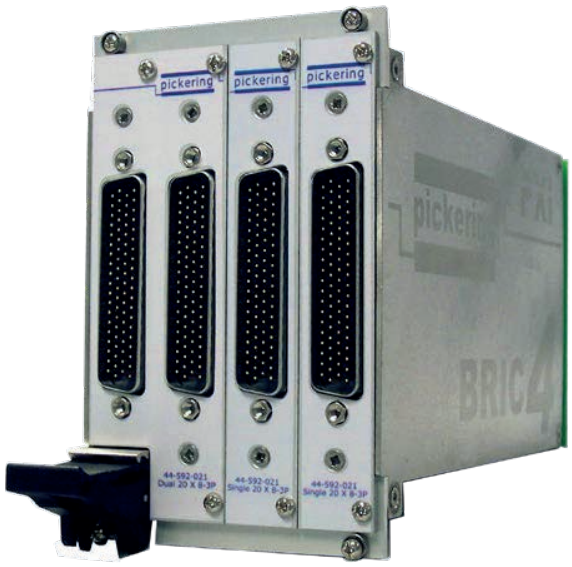
CAUTION - PRODUCT DOCUMENTATION	SYMBOL
Suitably qualified & trained users should ensure that the accompanying documentation is fully read and understood before attempting to install or operate the product.	

SAFETY INSTRUCTIONS

SAFETY INSTRUCTIONS
All cleaning and servicing requires the equipment to be isolated and disconnected from the power source and user I/O signals (refer to the Maintenance Section). • Appropriate manual handling procedures should be followed as dictated by the weight of the individual module or the combined weight of the modules & chassis. • Should a fault occur with the module or chassis, immediately isolate and disconnect the incoming power to the chassis and the user I/O signals. • Ensure the equipment is installed, operated and maintained by trained and authorised personnel. • For suitably equipped products in the event of an emergency press the red “emergency stop” button situated on the front of the unit.

SECTION 1 - TECHNICAL SPECIFICATION

- Integrated PXI Matrix Module With Built In High Performance Screened 8-Channel Analog Bus
- 2 or 3-Pin Breakout Configurations For Fault Simulation and Specialist Test Applications
- Very high Density With a 248x8 Matrix in an 8-slot Module (Including 2-Pin Breakout)
- Load Just The Number of Daughter Switch Cards You Need For Your Application
- Partially Populated Configurations Available - Minimizing Cost for Simpler Fault Condition Applications
- Uses High Reliability Ruthenium Reed Relays for Maximum Performance
- Switches up to 150V, 1A, 20W
- VISA & Kernel Drivers Supplied for Windows
- Supported by PXI or LXI Chassis
- 3 Year Warranty



The 40-592 FIBO (Fault Insertion Break-Out) Matrix is a large-scale high density switching matrix based on the Pickering BRIC format.

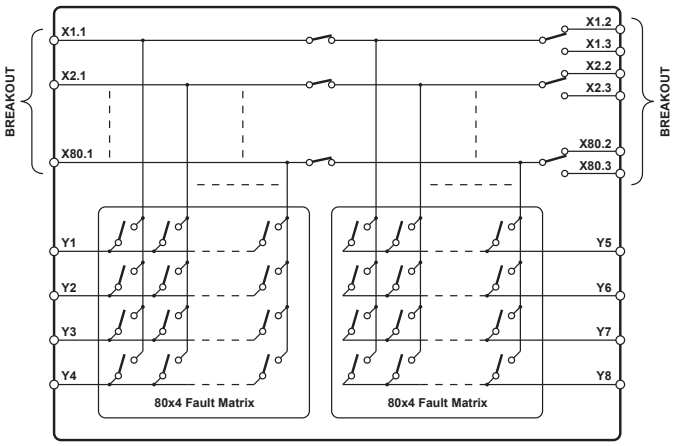
Fault insertion BRICs are designed for applications requiring the simulation of a variety of faults in complex, high pin count, applications involving sensors and control units. Typical faults that can be simulated are open-circuits, short-circuits to ground or battery, or short-circuits between input/output lines. Applications are in automotive and aerospace industries which involve safety or mission critical systems that have to behave predictably when cabling or sensor faults occur.

The FIBO Matrix Module is available as either a BRIC4 containing up to 4 daughter cards or a BRIC8 containing up to 8 daughter cards. This allows the X-bus of the matrix to be expanded in multiples of 31 for the 2-pin breakout version or multiples of 20 for the 3-pin breakout version.

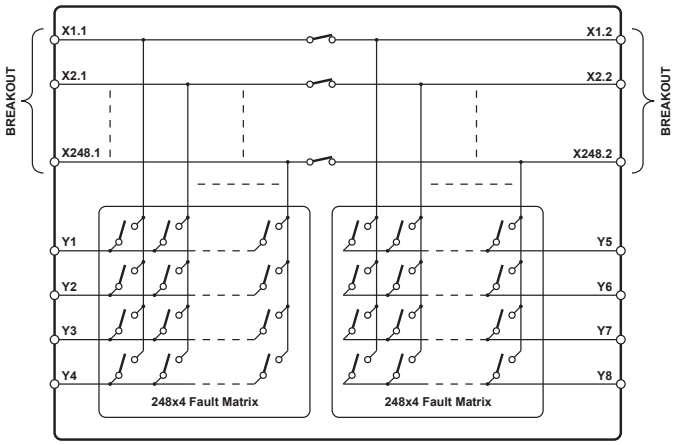
The programmable matrix designed to aid the simulation of faults. It allows measurement controllers and management systems to be automated, ensuring that the test can be performed quickly and reliably.

The fault insertion BRIC uses ruthenium reed relays to ensure a long and trouble free service life.

The backplane interface of the fault insertion BRIC uses a high speed buffered interface that ensure low latency on the the bus, ideal for operation with real time operating systems.



Schematic of the 40-592-021-80x8-3P FIBO High Density Matrix Module with 3-pin breakout (switches are shown in their default state)



Schematic of the 40-592-121-248x8-2P High Density FIBO Matrix Module with 2-pin breakout (switches are shown in their default state)

Relay Type

The 40-592 is fitted with high performance instrumentation grade Reed Relays (Ruthenium sputtered type). These offer very long life with good low level switching performance and excellent contact resistance stability.

Switching Specification

Switch Type:	Ruthenium Reed
Max Switching Voltage:	150VDC/100VAC*
Max Power:	20W
Max Switch Current:	1.0A
Max Carry Current:	1.2A
Initial Path Resistance (2-pin breakout)	
On path through matrix:	<750mΩ
On path through breakout:	<200mΩ
Off path resistance:	$>10^9\Omega$
Initial Path Resistance (3-pin breakout)	
On path through matrix:	<750mΩ
On path through breakout:	<300mΩ
Off path resistance:	$>10^9\Omega$
Thermal Offset:	<30µV
Operate Time:	<500µs †
Release Time:	<500µs †
Expected Life, low power load:	$>1x10^9$ operations
Expected Life, full power load:	$>1x10^6$ operations

* For full voltage rating, signal sources to be switched must be fully isolated from mains supply and safety earth.

† 200µs of the time quoted is relay settling time, the remaining time is dependant upon the speed of the controlling computer.

PXI & CompactPCI Compliance

The module is compliant with the PXI Specification 2.2. Local Bus, Trigger Bus and Star Trigger are not implemented.

Uses a 33MHz 32-bit backplane interface.

Safety & CE Compliance

All modules are fully CE compliant and meet applicable EU directives: Low-voltage safety EN61010-1:2010, EMC Immunity EN61326-1:2013, Emissions EN55011:2009+A1:2010.

Power Requirements

+3.3V	+5V	+12V	-12V
0	4A (1A typical)	0	0

Width and Dimensions

Four or eight slot 3U PXI module (CompactPCI).

3D models for these modules in a variety of popular file formats are available on request.

Module Weight

	Empty BRIC	Fully Loaded BRIC
BRIC4	0.9Kg	2.1Kg
BRIC8	1.6Kg	4.0Kg
BRIC daughter card	0.3Kg	

Connectors

PXI bus via 32-bit P1/J1 backplane connector.

Signals via multiple front panel connectors

- 40-592-121 Up to 8 x 78-pin male D-type connectors
- 40-592-021 Up to 4 x 78-pin male D-type connectors

For pin outs please refer to the operating manual.

Operating/Storage Conditions

Operating Conditions

Operating Temperature:	0°C to +55°C
Humidity:	Up to 90% non-condensing
Altitude:	5000m

Storage and Transport Conditions

Storage Temperature:	-20°C to +75°C
Humidity:	Up to 90% non-condensing
Altitude:	15000m

Special Versions

BRIC modules can be built in special versions, for example where an exact matrix size is required then partly populated daughtercards may be ordered.

Upgrading With Daughtercards

BRIC modules can be upgraded to larger matrix sizes using daughter-cards, please consult your local sales office for further information.

Product Order Codes

BRIC4 - High Density 4-Slot FIBO Matrix	40-592-021
BRIC8 - High Density 8-Slot FIBO Matrix	40-592-121

When ordering 40-592 FIBO modules the matrix configuration **must** be specified, this consists of the prefix code together with the configuration code. This specifies the number of daughter cards and whether 2 or 3-pin breakout is required as shown in the Configuration Code tables.

For the expansion of an existing BRIC matrix or replacement of faulty BRIC daughter cards please contact your local sales office.

Mating Connectors & Cabling

For connection accessories for the 40-596 modules please refer to the 90-006D 78-pin D-type Connector Accessories data sheet where a complete list and documentation can be found for accessories, or refer to the Connection Solutions catalog.

Product Customization

Pickering PXI modules are designed and manufactured on our own flexible manufacturing lines, giving complete product control and enabling simple customization to meet very specific requirements.

Customization can include:

- Alternative relay types
- Mixture of relay types
- Alternative number of relays
- Different performance specifications

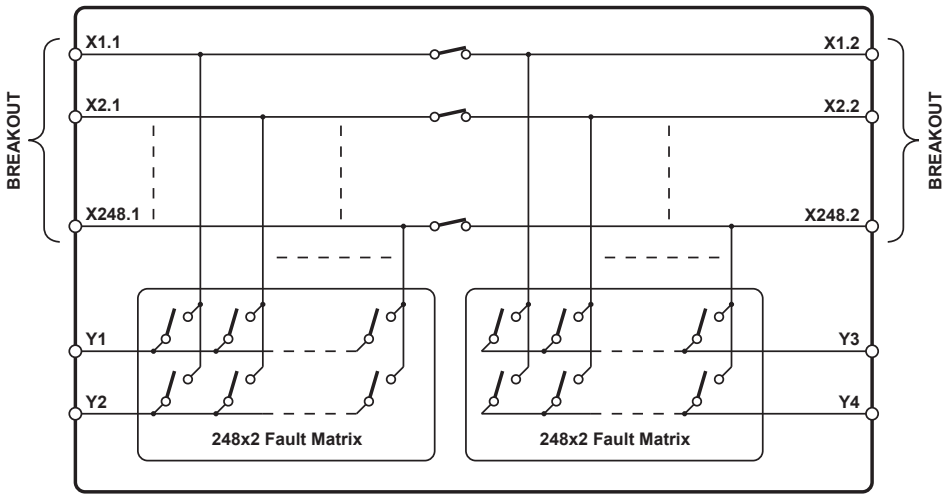
All customized products are given a unique part number, fully documented and may be ordered at any time in the future. Please contact your local sales office to discuss.

3-Pin Breakout FIBO Matrix Configuration Codes		
	BRIC4 40-592-021	BRIC8 40-592-121
20x8 matrix	-20x8-3P	-20x8-3P
40x8 matrix	-40x8-3P	-40x8-3P
60x8 matrix	-60x8-3P	-60x8-3P
80x8 matrix	-80x8-3P	-80x8-3P
100x8 matrix		-100x8-3P
120x8 matrix		-120x8-3P
140x8 matrix		-140x8-3P
160x8 matrix		-160x8-3P

2-Pin Breakout FIBO Matrix Configuration Codes		
	BRIC4 40-592-021	BRIC8 40-592-121
31x8 matrix	-31x8-2P	-31x8-2P
62x8 matrix	-62x8-2P	-62x8-2P
93x8 matrix	-93x8-2P	-93x8-2P
124x8 matrix	-124x8-2P	-124x8-2P
155x8 matrix		-155x8-2P
186x8 matrix		-186x8-2P
217x8 matrix		-217x8-2P
248x8 matrix		-248x8-2P

Partially Populated Versions - Configuration Codes

FIBO BRIC modules can be ordered with partially populated matrix configurations for simpler fault testing applications.
For example a 4-wire Y bus can be specified as follows:
40-592-021-124x4-2P (2-pin breakout 124x4 BRIC4 matrix)
40-592-121-248x4-2P (2-pin breakout 248x4 BRIC8 matrix)
Please consult your local sales office for further information.



Schematic Diagram for an example of a partially populated FIBO Matrix Module with a 4-wire Y-bus (order code 40-592-121-248x4-2P)

Chassis Compatibility

This PXI module must be used in a suitable chassis. It is compatible with the following chassis types:

- All chassis conforming to the 3U PXI and 3U Compact PCI (cPCI) specification
- Legacy and Hybrid Peripheral slots in a 3U PXI Express (PXIe) chassis
- Pickering Interfaces LXI or LXI/USB Modular Chassis



Chassis Selection Guide

Standard PXI or hybrid PXIe Chassis from any Vendor:

- Mix our 1000+ PXI switching & simulation modules with any vendor's PXI instrumentation
- Embedded or remote Windows PC control
- Real-time Operating System Support
- High data bandwidths, especially with PXI Express
- Integrated module timing and synchronization

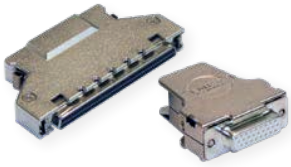
Pickering LXI or LXI/USB Modular Chassis—only accept our 1000+ PXI Switching & Simulation Modules:

- Ethernet or USB control enables remote operation
- Low-cost control from practically any controller
- LXI provides manual control via Web browsers
- Driverless software support
- Power sequencing immunity
- Ethernet provides chassis/controller voltage isolation
- Independence from Windows operating system



Connectivity Solutions

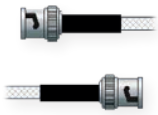
We provide a full range of supporting cable and connector solutions for all our switching products—20 connector families with 1200+ products. We offer everything from simple mating connectors to complex cables assemblies and terminal blocks. All assemblies are manufactured by Pickering and are guaranteed to mechanically and electrically mate to our modules.



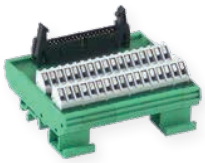
Connectors & Backshells



Multiway Cable Assemblies



RF Cable Assemblies



Connector Blocks

We also offer customized cabling and have a free online **Cable Design Tool** that can be used to create custom cable solutions for many applications.
Visit: pickeringtest.com/cdt to start your design.



Mass Interconnect

We recommend the use of a mass interconnect solution when an Interchangeable Test Adapter (ITA) is required for a PXI or LXI based test system. Our modules are fully supported by both Virginia Panel and MacPanel.

Pickering Reed Relays

We are the only switch provider with in-house reed relay manufacturing capability via our sister company, Pickering Electronics. These instrument grade reed relays feature ***SoftCenter***® technology, ensuring long service life and repeatable contact performance.

To learn more, please go to: pickeringrelay.com



Programming

Pickering provide kernel, IVI and VISA (NI & Keysight) drivers which are compatible with all Microsoft supported versions of Windows and popular older versions. For a list of all supporting operating systems, please see: pickeringtest.com/os

The VISA driver is also compatible with Real-Time Operating Systems such as LabVIEW RT. For other RTOS support contact Pickering. These drivers may be used with a variety of programming environments and applications including:

- **Pickering Interfaces Switch Path Manager**
- **National Instruments** products (LabVIEW, LabWindows/CVI, Switch Executive, MAX, TestStand, VeriStand, etc.)
- **Microsoft Visual Studio** products (Visual Basic, Visual C+)
- **Keysight** VEE and OpenTAP
- **Mathworks** Matlab
- **Marvin** ATEasy
- **MTQ Testsolutions** Tecap Test & Measurement Suite

Drivers for popular Linux distributions are available, other environments are also supported, please contact Pickering with specific enquiries. We provide Soft Front Panels (SFPs) for our products for familiarity and manual control, as well as comprehensive documentation and example programs to help you develop test routines with ease.
To learn more about software drivers and development environments, please go to:
pickeringtest.com/software

Signal Routing Software



Our signal routing software, Switch Path Manager, automatically selects and energizes switch paths through Pickering switching systems. Signal routing is performed by simply defining test system endpoints to be connected together, greatly accelerating Test System software development. To learn more, please go to: pickeringtest.com/spm

Diagnostic Relay Test Tools



eBIRST Switching System Test Tools are designed specifically for our PXI, PCI or LXI products, these tools simplify switching system fault-finding by quickly testing the system and graphically identifying the faulty relay.
To learn more, please go to: pickeringtest.com/ebirst

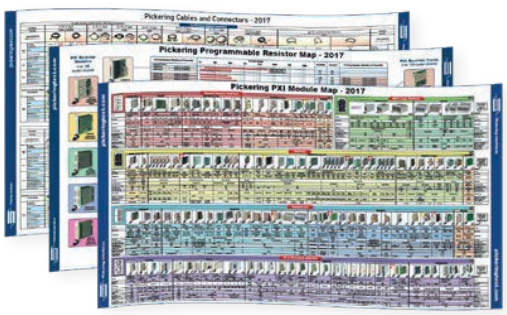
Three Year Warranty & Guaranteed Long-Term Support

All standard products manufactured by Pickering Interfaces are warranted against defective materials and workmanship for a period of three years from the date of delivery to the original purchaser. Extended warranty and service agreements are available for all our modules and systems with various levels to suit your requirements. Although we offer a 3-year warranty as standard, we also include guaranteed long-term support—with a history of supporting our products for typically 15-20 years. To learn more, please go to: pickeringtest.com/support

Available Product Resources

We have a large library of product resources including success stories, product and support videos, articles, as well as complete product catalogs and product reference maps to assist when looking for the switching, simulation and cable and connector solutions you need. We have also published handy reference books on Switching Technology and for the PXI and LXI standards.







To view, download or request any of our product resources, please visit: pickeringtest.com/resources

THIS PAGE INTENTIONALLY BLANK

SECTION 2 - TECHNICAL DESCRIPTION

MECHANICAL DESCRIPTION

The BRIC Module comprises an alloy chassis, either 4 slot (4 Daughter Cards) or 8 slot (8 Daughter Cards) width, with an integral backplane and a number of High Density Matrix Daughter Cards. The chassis is provided with cooling slots, top and bottom. The backplane provides mounting for the 50-pin connectors (into which the Matrix Daughter Cards plug) and Control logic.

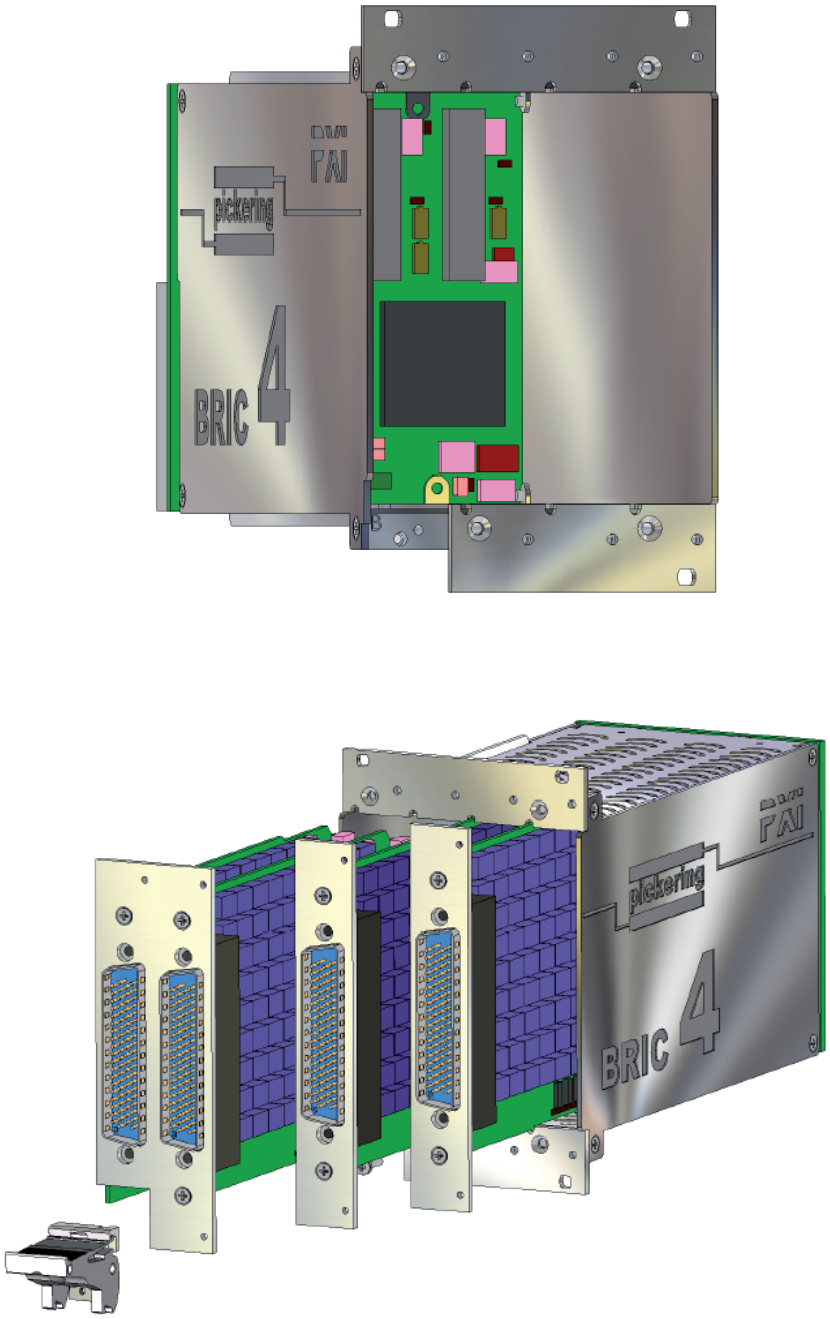


Figure 2.1 - 40-592 BRIC4 Chassis Architecture

FUNCTIONAL DESCRIPTION

A functional block diagram is provided in Figure 2.3. The BRIC Module is powered by a +5V input via Compact PCI connector J1 mounted on the Backplane. The interface to the user test equipment is via the front panel mounted 78 pin D-type connectors, mounted on the Matrix Daughter card assemblies. Each daughtercard assembly comprises a daughtercard and a mezzanine daughtercard.

Each Matrix Daughter Card comprises a PCB populated with Relay Drivers and single pole relays configured as 20 x 8 three pole, or 31 x 8 two pole matrices. The matrix daughter cards are connected to each other via connectors mounted on the backplane. Connectors J2 to J5 (J2 to J9 BRIC 8) are connected to an Analog Bus, which comprises control lines, Y Bus and power. The Matrix Daughter Cards are programmed as a whole matrix. The overall size of the matrix may be increased or decreased by adding or removing daughter cards.

The Matrix Daughter card in slot 1 is configured so that the Y bus is connected to the front panel connector (see Figure 2.2).

The matrix relays are energised via control signals from the relay drivers, which are addressed by the PCI bridge U2 and FGPA U4 mounted on the Backplane, to output the required signal. The PCI Bridge U1 is configured by EEPROM U1 and the FGPA by U6.

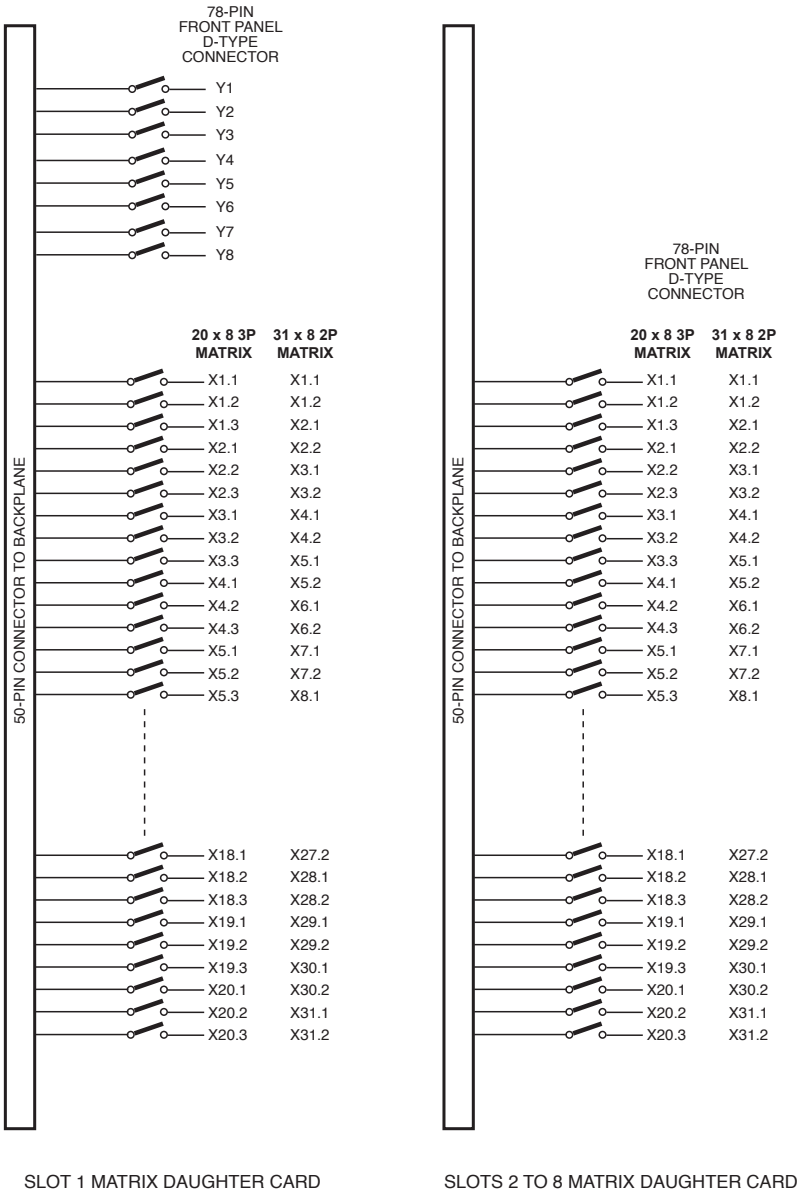
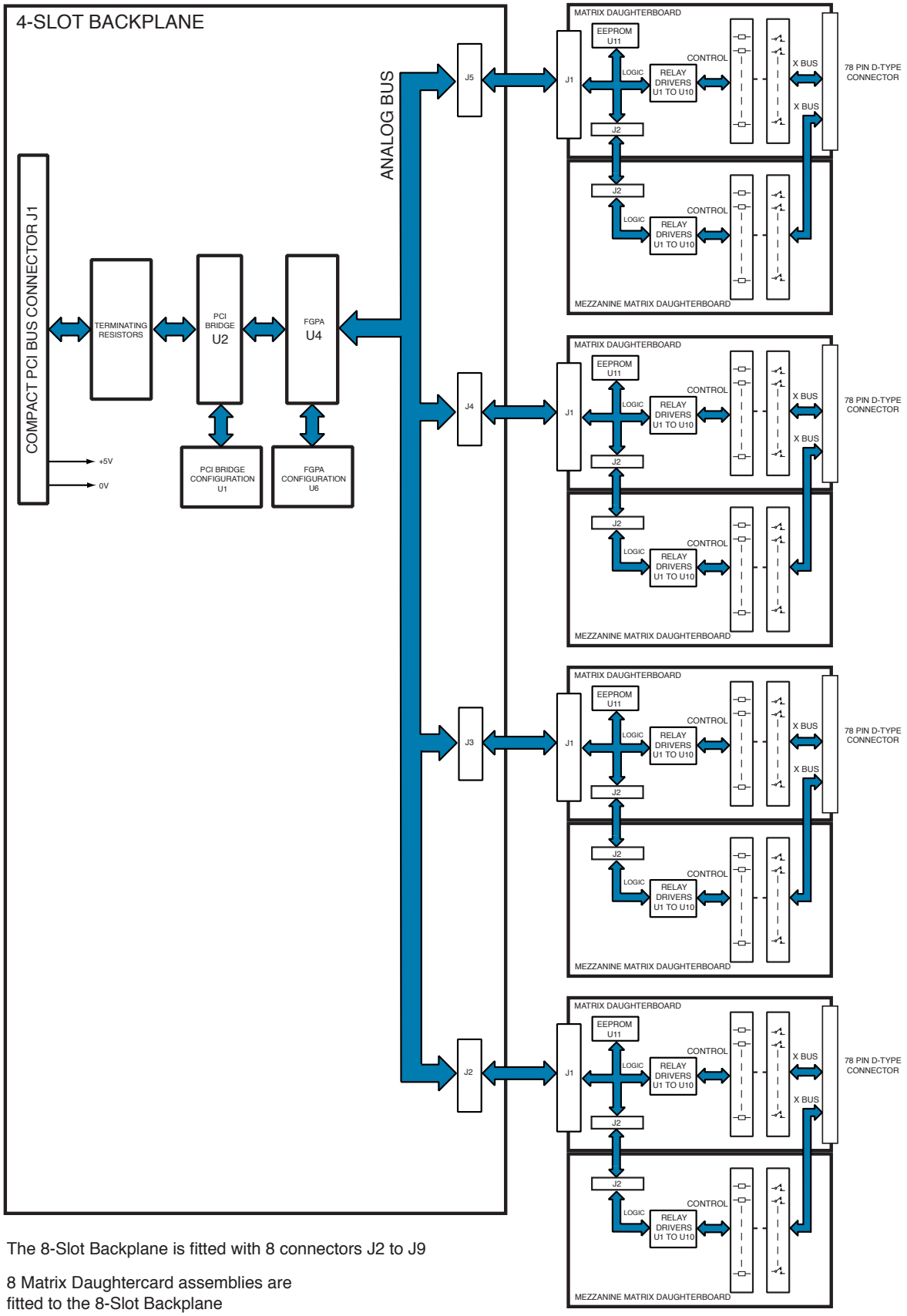


Figure 2.2 - Matrix Daughter Cards: Relay Schematic



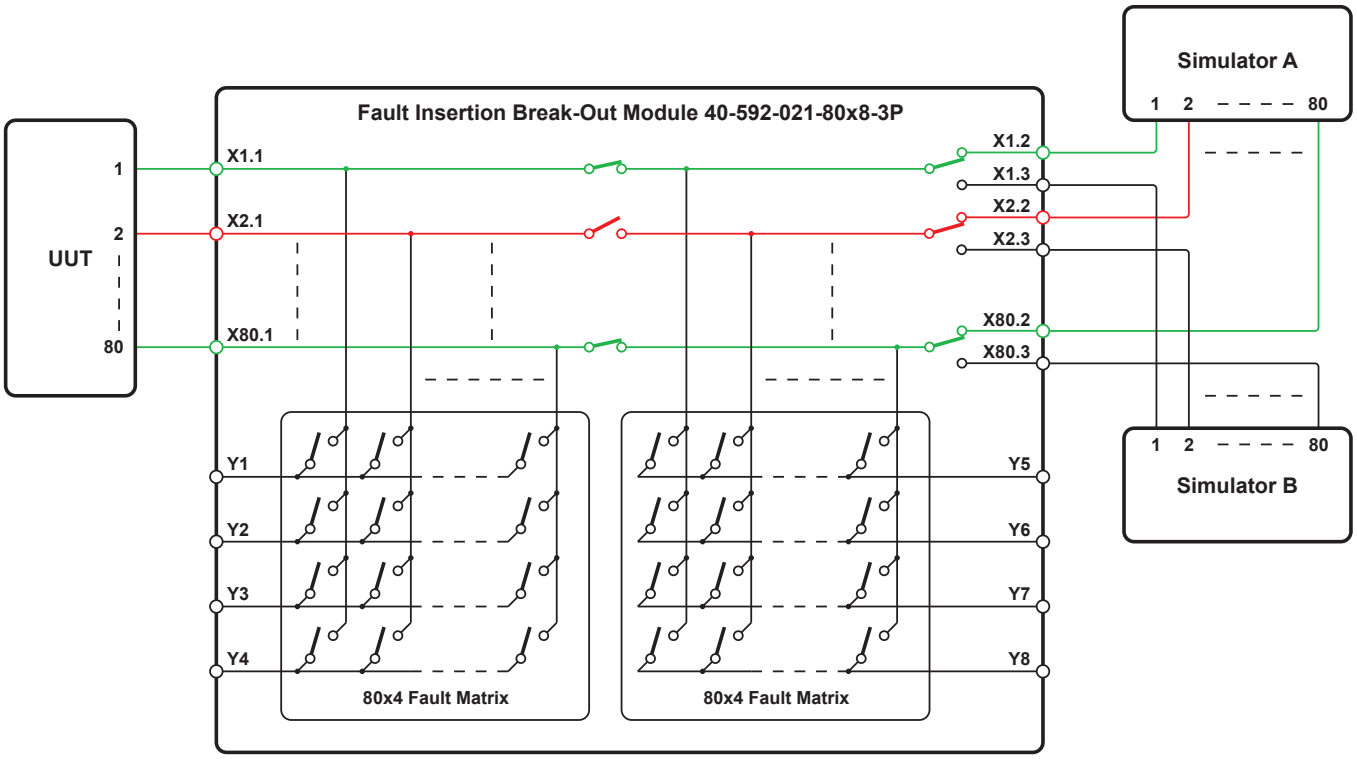
The 8-Slot Backplane is fitted with 8 connectors J2 to J9

8 Matrix Daughtercard assemblies are fitted to the 8-Slot Backplane

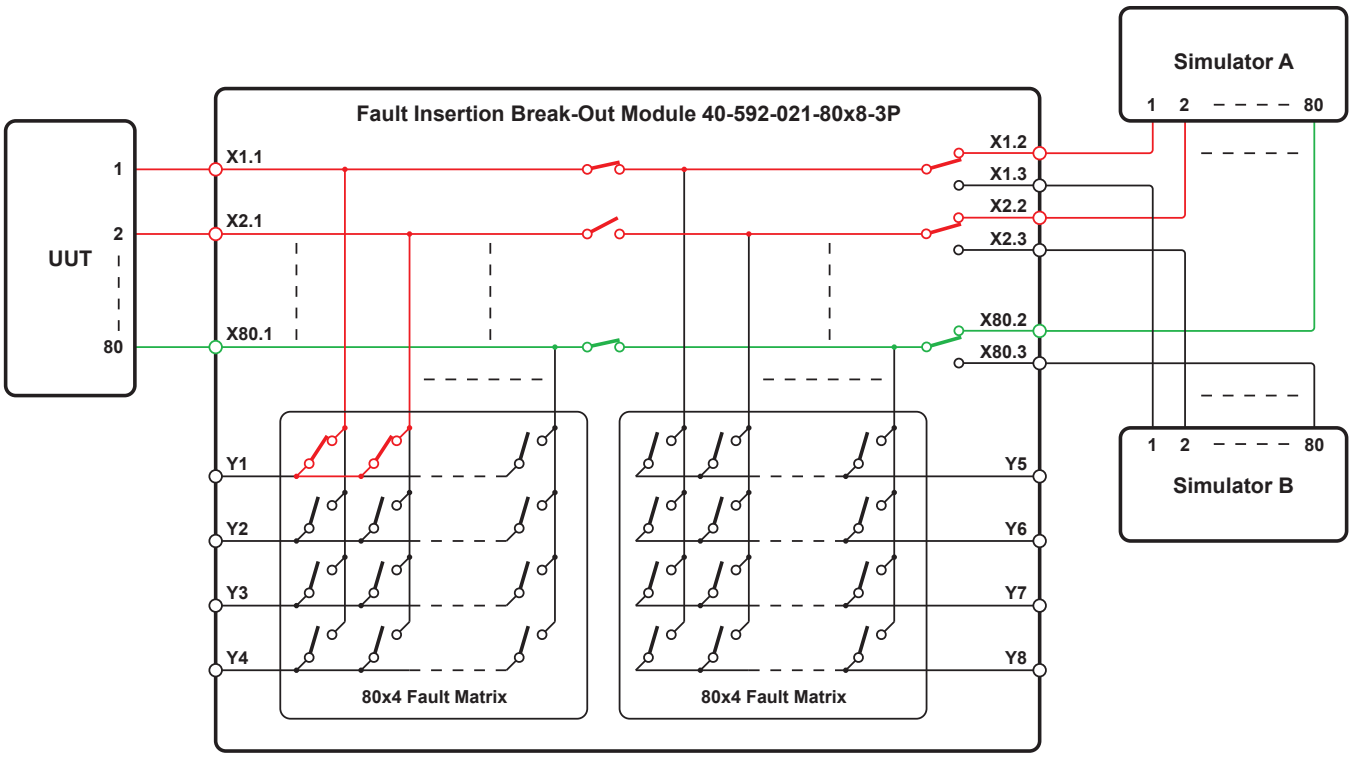
Figure 2.3 - BRIC Module: Functional Block Diagram

FAULT INSERTION EXAMPLES USING THE FIBO MATRIX

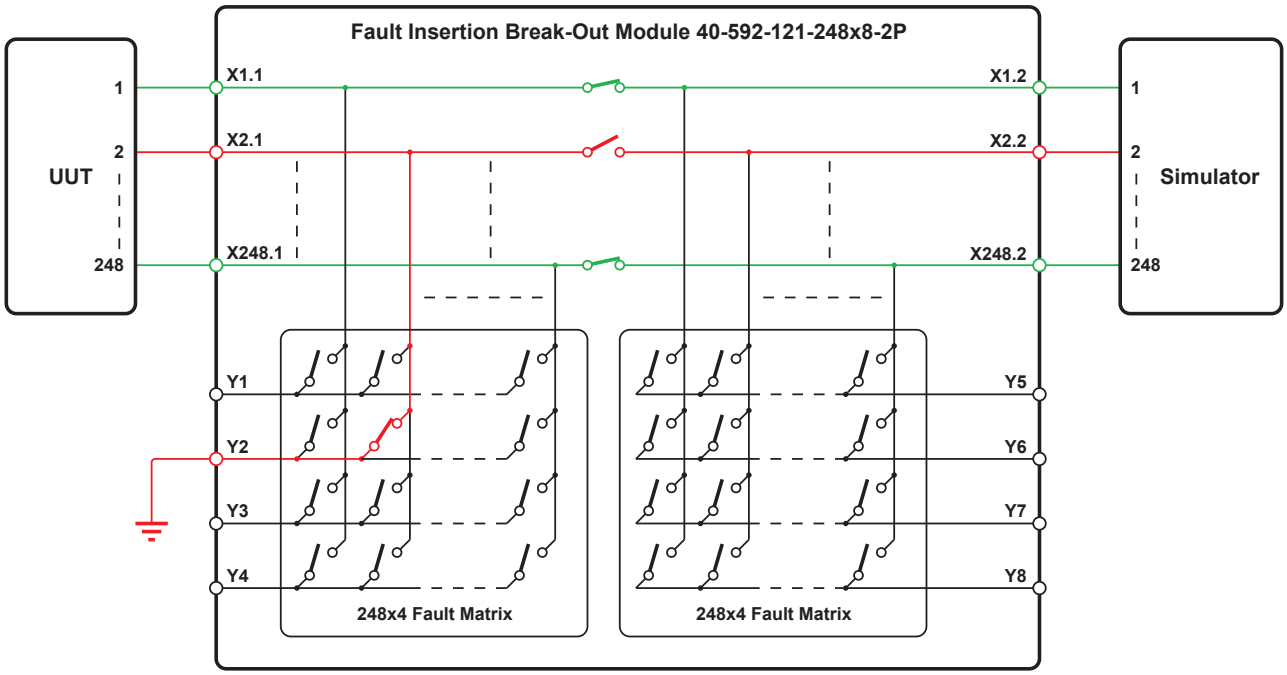
In a typical fault insertion example the X breakout connections are used to connect either a simulated sensor or a real sensor output to the device under test. The isolation switch can be used to disconnect the sensor source and faults can be inserted on either the sensor side or the device side of the isolation switch. Fault networks are connected to the Y axis connections to simulate shorts to ground or to power, or to simulate the effect of leakage paths. High resistance paths can also be simulated either in series with the signal or as a leakage between signal paths.



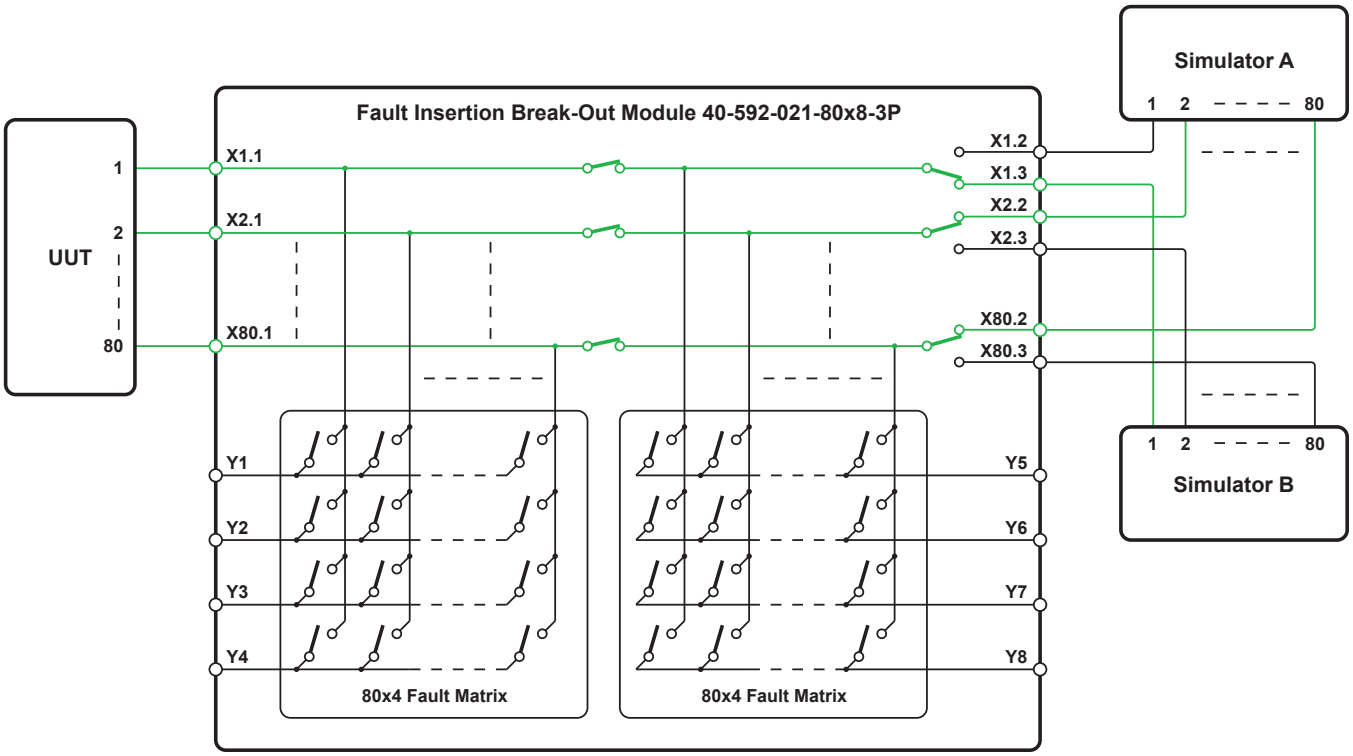
Fault Insertion Example 1: Open Circuit on Breakout 2 of a 80x8 FIBO High Density Matrix Module With 3-pin Breakout



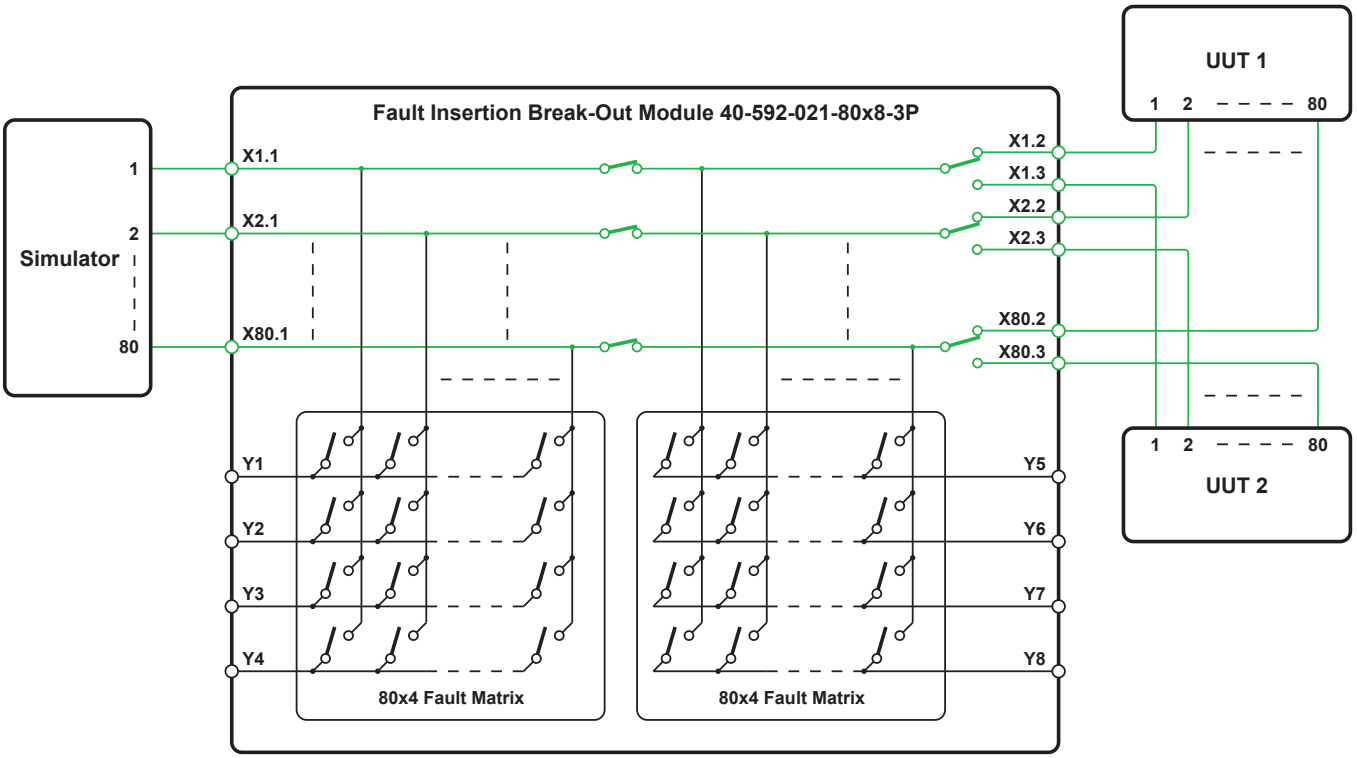
Fault Insertion Example 2: Short Circuit Between Breakout 1 & 2 With Breakout 2 Connection Open
Using a 80x8 FIBO High Density Matrix Module With 3-pin Breakout



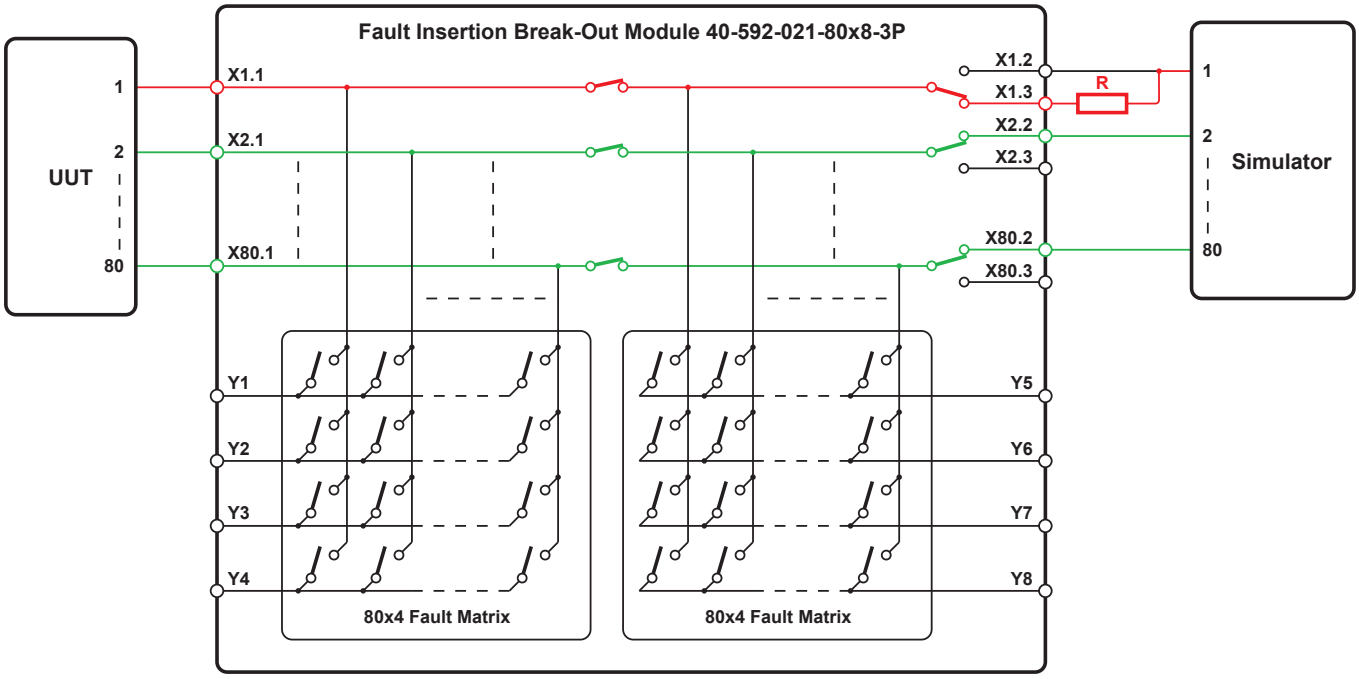
Fault Insertion Example 3: Signal Short to Ground Using Y2 With Breakout 2 Connection Open
Using a 248x8 FIBO High Density Matrix Module With 2-pin Breakout



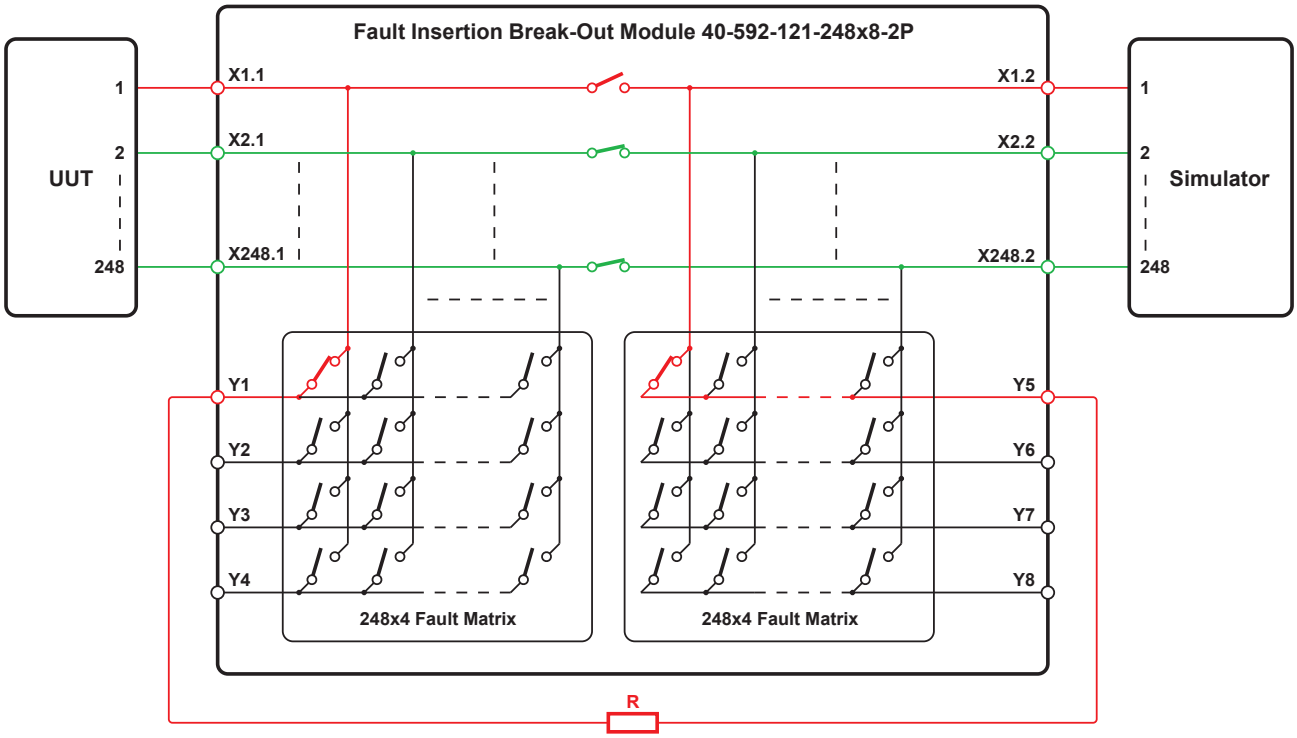
Fault Insertion Example 4: Signal on Breakout 1 Routed to Alternative Simulator
Using a 80x8 FIBO High Density Matrix Module With 3-pin Breakout



Fault Insertion Example 5: Routing Signals to Two UUTs For Comparison
Using a 80x8 FIBO High Density Matrix Module With 3-pin Breakout



Fault Insertion Example 6: Adding Series Resistance Into Breakout 1 Using Connection 1.3
Using a 80x8 FIBO High Density Matrix Module With 3-pin Breakout



Fault Insertion Example 7: Adding a Series Resistance Into Breakout 1 Using Y1 and Y5
On a 248x8 FIBO High Density Matrix Module With 2-pin Breakout

THIS PAGE INTENTIONALLY BLANK

SECTION 3 - INSTALLATION

Refer to the Warnings and Cautions at the front of this manual

Modular products require installation in a suitable PXI/LXI chassis. The module is designed for indoor use only.

PREOPERATION CHECKS (UNPACKING)

1. Check the module for transport damage and report any damage immediately to Pickering Interfaces. Do not attempt to install the product if any damage is evident.
2. Position the chassis relative to any other equipment the module(s) will connect with. Ensure the chassis is not connected to the electrical supply.
3. Ensure that the designated area for the chassis containing the module is of flat and solid construction to withstand and support the combined weight of the module(s) and chassis.

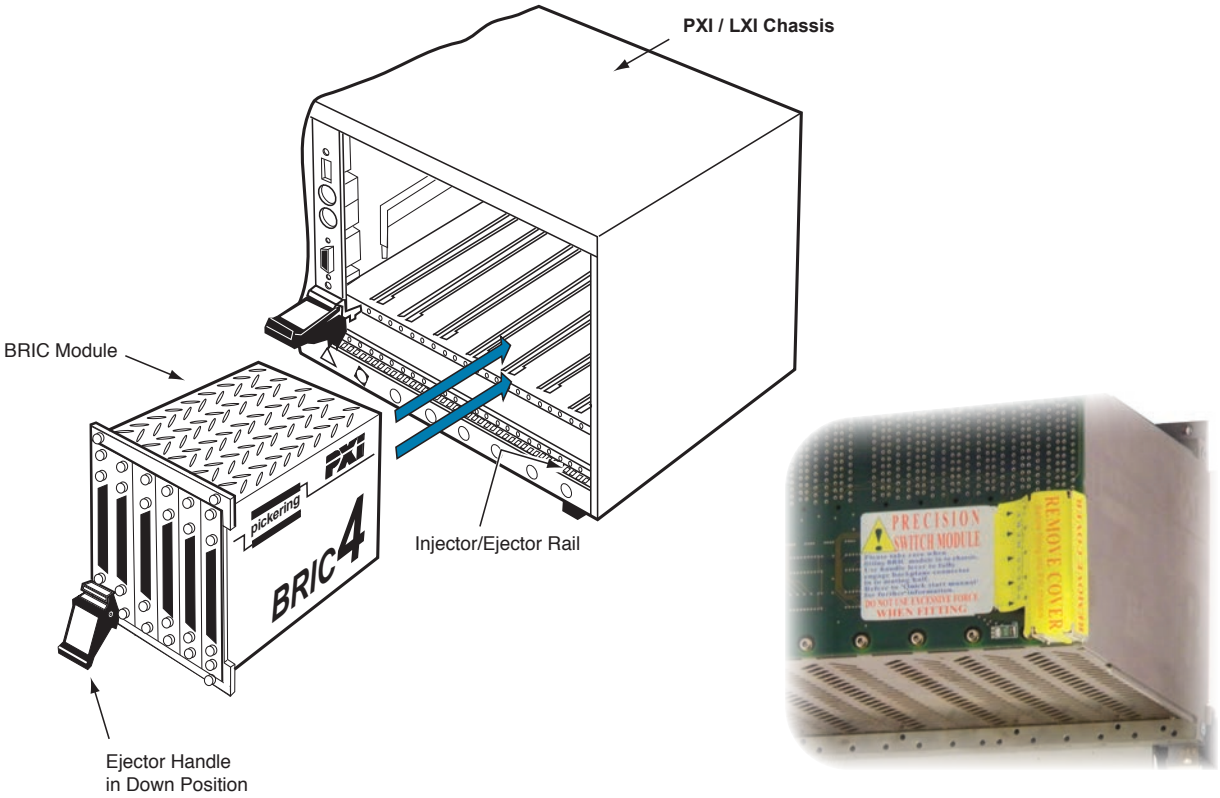


Figure 3.1 - Installing the Module into a PXI / cPCI / LXI Chassis

HARDWARE INSTALLATION
ELECTRICAL CONNECTION (CHASSIS)

1. The chassis must be electrically installed in accordance with local regional electrical codes by a qualified engineer.
2. The chassis must be grounded.

Electrostatic discharge can damage the components on the module. To avoid such damage in handling the board refer to page VII.

Ensure that there is adequate ventilation.

The module should be installed in accordance with the following procedure:

1. Ensure that the system is turned OFF but still connected to mains so that it remains grounded.
2. Choose an appropriate slot in the rack.
3. Remove the blanking plate for the chosen slot.
4. Ensure that the injector/ejector handle is in its downward position. Align the module with the card guides on the top and bottom of the slot.

   Do not raise the injector/ejector handle whilst inserting the module as the module will not insert properly.
5. Hold the handle whilst slowly sliding the module into the card guides until the handle catches on the injector/ejector rail (refer to Figure 3.1).
6. Raise the injector/ejector handle until the module firmly seats into the backplane. The front panel of the module should be flush with the front panel of the chassis.
7. Secure the front panel of the module using both screws to the chassis front panel mounting rails.
8. In a system employing a remote control interface to connect an external controller to a PXI chassis or to link multiple chassis, power-up the system as follows:
   a. For a system comprising an external controller and one chassis, power up the chassis before powering up the external controller.
   b. For a system comprising more than one chassis, turn ON the last chassis in the system followed by the penultimate, etc, and finally turn ON the external controller or chassis containing the system controller.
9. For Pickering Interfaces modular LXI installation there is no requirement to use any particular power up sequence.

SOFTWARE INSTALLATION

First install the appropriate Pickering PXI switch card drivers by running the installer program Setup.exe (provided in a compressed zip file), either from the CD-ROM supplied, or by downloading the latest version from our website **pickeringtest.com** - the recommended method. Setup is accompanied by a ReadMe file containing additional installation information. A single installation covers all cards in the System 40, System 45 and System 50 ranges.

When installation completes, the installed drivers' ReadMe file is offered for display. It can also be displayed later using a shortcut on the Programs>>Pickering menu.

If you are not a LabVIEW user you should choose the "full" version, and once that has been installed run the LabVIEW Runtime Engine installer via the shortcut on the Programs>>Pickering menu. In the absence of LabVIEW the Runtime Engine is required to support the Pickering Test Panels application.

TESTING OPERATION

After installation of the hardware and Pickering PXI Driver software package start the General Soft Front Panel (GSFP) using the desktop icon or via the Start menu (***Start Menu-> Pickering Interfaces Ltd -> General Soft Front Panel***).



Figure 3.2 - General Soft Front Panel Icon

A selector panel will appear, listing all installed Pickering PCI, PXI or LXI switch cards and resistor cards. Click on the card you wish to control, and a graphical control panel is presented allowing operation of the card. Panels can be opened simultaneously for all the installed cards.

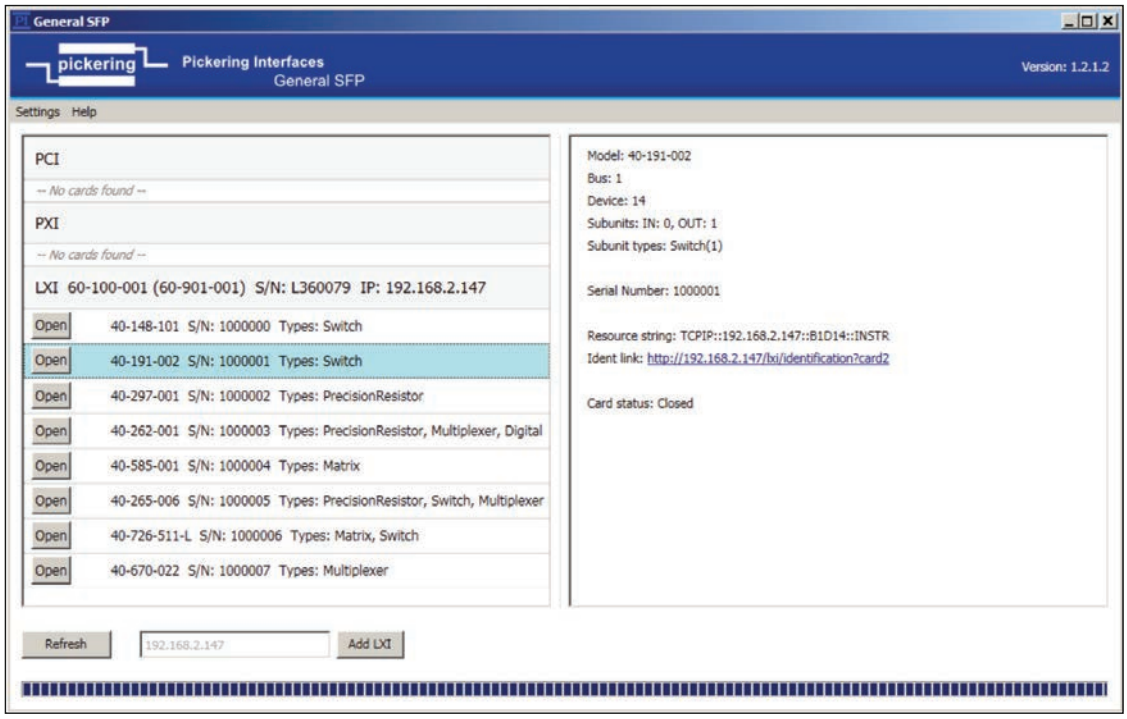


Figure 3.3 - General Soft Front Panel Selector

More details how to use the GSFP can be found in the manual, via menu ***Help\Manual***

THIS PAGE INTENTIONALLY BLANK

SECTION 4 - PROGRAMMING

PROGRAMMING OPTIONS FOR PICKERING INTERFACES PXI MODULES

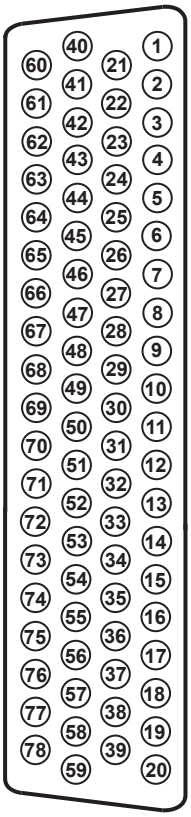
For information on the installation and use of drivers and the programming of Pickering's products in various software environments, please refer to the Software User Manual.

This is available as a download from:
https://www.pickeringtest.com/support/software-drivers-and-downloads

Also, it can be accessed from the DVD supplied with the product:
<DVD_DRIVE>\downloads\Documentation\Software-Manual.pdf

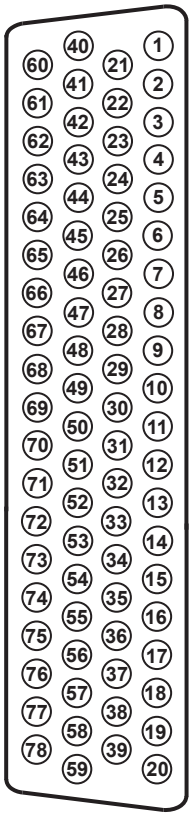
THIS PAGE INTENTIONALLY BLANK

SECTION 5 - CONNECTOR INFORMATION



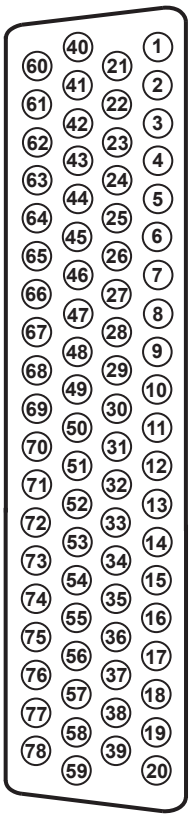
40-592 Daughter Board 1 - 78-pin Male D-type							
Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name
60	X1.1	40	X2.1	21	X3.1	1	X4.1
61	X1.2	41	X2.2	22	X3.2	2	X4.2
62	X1.3	42	X2.3	23	X3.3	3	X4.3
63	X5.1	43	X6.1	24	X7.1	4	X8.1
64	X5.2	44	X6.2	25	X7.2	5	X8.2
65	X5.3	45	X6.3	26	X7.3	6	X8.3
66	X9.1	46	X10.1	27	X11.1	7	X12.1
67	X9.2	47	X10.2	28	X11.2	8	X12.2
68	X9.3	48	X10.3	29	X11.3	9	X12.3
69	X13.1	49	X14.1	30	X15.1	10	X16.1
70	X13.2	50	X14.2	31	X15.2	11	X16.2
71	X13.3	51	X14.3	32	X15.3	12	X16.3
72	X17.1	52	X18.1	33	X19.1	13	X20.1
73	X17.2	53	X18.2	34	X19.2	14	X20.2
74	X17.3	54	X18.3	35	X19.3	15	X20.3
75	—	55	—	36	—	16	—
76	Y1 (Y1)	56	—	37	Y5 (Y3)	17	—
77	Y2 (Y2)	57	Y3 (–)	38	Y6 (Y4)	18	Y7 (–)
78	—	58	Y4 (–)	39	—	19	Y8 (–)
		59	—			20	GND

Figure 5.1 - Pinout for Versions of The 40-592 FIBO Matrix With 3-Pin Breakout - Daughter Board 1
(Note: the signal names in brackets apply to versions with a 4-wire Y-bus)



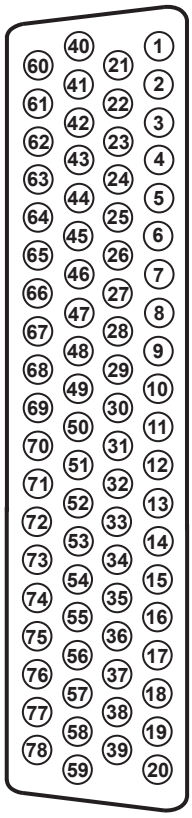
40-592 Daughter Board 2 - 78-pin Male D-type							
Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name
60	X21.1	40	X22.1	21	X23.1	1	X24.1
61	X21.2	41	X22.2	22	X23.2	2	X24.2
62	X21.3	42	X22.3	23	X23.3	3	X24.3
63	X25.1	43	X26.1	24	X27.1	4	X28.1
64	X25.2	44	X26.2	25	X27.2	5	X28.2
65	X25.3	45	X26.3	26	X27.3	6	X28.3
66	X29.1	46	X30.1	27	X31.1	7	X32.1
67	X29.2	47	X30.2	28	X31.2	8	X32.2
68	X29.3	48	X30.3	29	X31.3	9	X32.3
69	X33.1	49	X34.1	30	X35.1	10	X36.1
70	X33.2	50	X34.2	31	X35.2	11	X36.2
71	X33.3	51	X34.3	32	X35.3	12	X36.3
72	X37.1	52	X38.1	33	X39.1	13	X40.1
73	X37.2	53	X38.2	34	X39.2	14	X40.2
74	X37.3	54	X38.3	35	X39.3	15	X40.3
75	—	55	—	36	—	16	—
76	—	56	—	37	—	17	—
77	—	57	—	38	—	18	—
78	—	58	—	39	—	19	—
		59	—			20	GND

Figure 5.2 - Pinout for Versions of The 40-592 FIBO Matrix With 3-Pin Breakout - Daughter Board 2



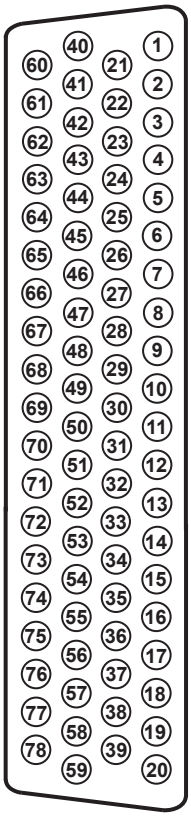
40-592 Daughter Board 3 - 78-pin Male D-type							
Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name
60	X41.1	40	X42.1	21	X43.1	1	X44.1
61	X41.2	41	X42.2	22	X43.2	2	X44.2
62	X41.3	42	X42.3	23	X43.3	3	X44.3
63	X45.1	43	X46.1	24	X47.1	4	X48.1
64	X45.2	44	X46.2	25	X47.2	5	X48.2
65	X45.3	45	X46.3	26	X47.3	6	X48.3
66	X49.1	46	X50.1	27	X51.1	7	X52.1
67	X49.2	47	X50.2	28	X51.2	8	X52.2
68	X49.3	48	X50.3	29	X51.3	9	X52.3
69	X53.1	49	X54.1	30	X55.1	10	X56.1
70	X53.2	50	X54.2	31	X55.2	11	X56.2
71	X53.3	51	X54.3	32	X55.3	12	X56.3
72	X57.1	52	X58.1	33	X59.1	13	X60.1
73	X57.2	53	X58.2	34	X59.2	14	X60.2
74	X57.3	54	X58.3	35	X59.3	15	X60.3
75	—	55	—	36	—	16	—
76	—	56	—	37	—	17	—
77	—	57	—	38	—	18	—
78	—	58	—	39	—	19	—
		59	—			20	GND

Figure 5.3 - Pinout for Versions of The 40-592 FIBO Matrix With 3-Pin Breakout - Daughter Board 3



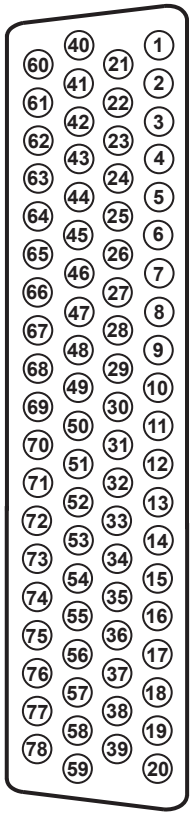
40-592 Daughter Board 4 - 78-pin Male D-type							
Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name
60	X61.1	40	X62.1	21	X63.1	1	X64.1
61	X61.2	41	X62.2	22	X63.2	2	X64.2
62	X61.3	42	X62.3	23	X63.3	3	X64.3
63	X65.1	43	X66.1	24	X67.1	4	X68.1
64	X65.2	44	X66.2	25	X67.2	5	X68.2
65	X65.3	45	X66.3	26	X67.3	6	X68.3
66	X69.1	46	X70.1	27	X71.1	7	X72.1
67	X69.2	47	X70.2	28	X71.2	8	X72.2
68	X69.3	48	X70.3	29	X71.3	9	X72.3
69	X73.1	49	X74.1	30	X75.1	10	X76.1
70	X73.2	50	X74.2	31	X75.2	11	X76.2
71	X73.3	51	X74.3	32	X75.3	12	X76.3
72	X77.1	52	X78.1	33	X79.1	13	X80.1
73	X77.2	53	X78.2	34	X79.2	14	X80.2
74	X77.3	54	X78.3	35	X79.3	15	X80.3
75	—	55	—	36	—	16	—
76	—	56	—	37	—	17	—
77	—	57	—	38	—	18	—
78	—	58	—	39	—	19	—
		59	—			20	GND

Figure 5.4 - Pinout for Versions of The 40-592 FIBO Matrix With 3-Pin Breakout - Daughter Board 4



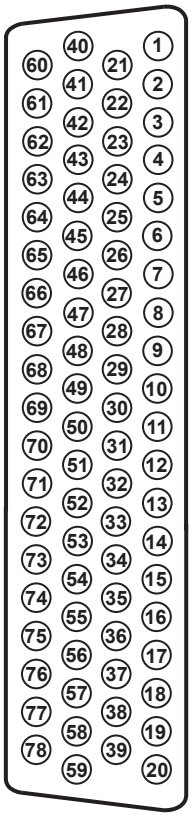
40-592 Daughter Board 5 - 78-pin Male D-type							
Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name
60	X81.1	40	X82.1	21	X83.1	1	X84.1
61	X81.2	41	X82.2	22	X83.2	2	X84.2
62	X81.3	42	X82.3	23	X83.3	3	X84.3
63	X85.1	43	X86.1	24	X87.1	4	X88.1
64	X85.2	44	X86.2	25	X87.2	5	X88.2
65	X85.3	45	X86.3	26	X87.3	6	X88.3
66	X89.1	46	X90.1	27	X91.1	7	X92.1
67	X89.2	47	X90.2	28	X91.2	8	X92.2
68	X89.3	48	X90.3	29	X91.3	9	X92.3
69	X93.1	49	X94.1	30	X95.1	10	X96.1
70	X93.2	50	X94.2	31	X95.2	11	X96.2
71	X93.3	51	X94.3	32	X95.3	12	X96.3
72	X97.1	52	X98.1	33	X99.1	13	X100.1
73	X97.2	53	X98.2	34	X99.2	14	X100.2
74	X97.3	54	X98.3	35	X99.3	15	X100.3
75	—	55	—	36	—	16	—
76	—	56	—	37	—	17	—
77	—	57	—	38	—	18	—
78	—	58	—	39	—	19	—
		59	—			20	GND

Figure 5.5 - Pinout for Versions of The 40-592 FIBO Matrix With 3-Pin Breakout - Daughter Board 5



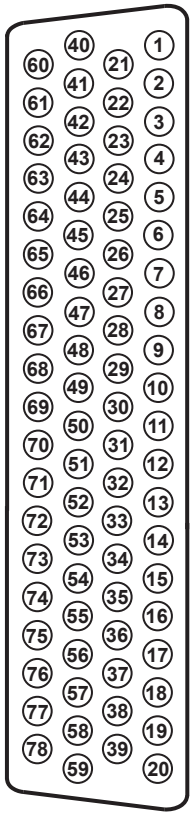
40-592 Daughter Board 6 - 78-pin Male D-type							
Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name
60	X101.1	40	X102.1	21	X103.1	1	X104.1
61	X101.2	41	X102.2	22	X103.2	2	X104.2
62	X101.3	42	X102.3	23	X103.3	3	X104.3
63	X105.1	43	X106.1	24	X107.1	4	X108.1
64	X105.2	44	X106.2	25	X107.2	5	X108.2
65	X105.3	45	X106.3	26	X107.3	6	X108.3
66	X109.1	46	X110.1	27	X111.1	7	X112.1
67	X109.2	47	X110.2	28	X111.2	8	X112.2
68	X119.3	48	X110.3	29	X111.3	9	X112.3
69	X113.1	49	X114.1	30	X115.1	10	X116.1
70	X113.2	50	X114.2	31	X115.2	11	X116.2
71	X113.3	51	X114.3	32	X115.3	12	X116.3
72	X117.1	52	X118.1	33	X119.1	13	X120.1
73	X117.2	53	X118.2	34	X119.2	14	X120.2
74	X117.3	54	X118.3	35	X119.3	15	X120.3
75	—	55	—	36	—	16	—
76	—	56	—	37	—	17	—
77	—	57	—	38	—	18	—
78	—	58	—	39	—	19	—
		59	—			20	GND

Figure 5.6 - Pinout for Versions of The 40-592 FIBO Matrix With 3-Pin Breakout - Daughter Board 6



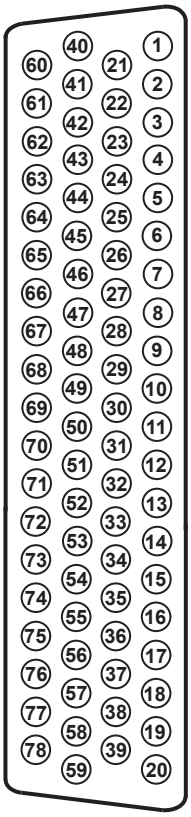
40-592 Daughter Board 7 - 78-pin Male D-type							
Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name
60	X121.1	40	X122.1	21	X123.1	1	X124.1
61	X121.2	41	X122.2	22	X123.2	2	X124.2
62	X121.3	42	X122.3	23	X123.3	3	X124.3
63	X125.1	43	X126.1	24	X127.1	4	X128.1
64	X125.2	44	X126.2	25	X127.2	5	X128.2
65	X125.3	45	X126.3	26	X127.3	6	X128.3
66	X129.1	46	X130.1	27	X131.1	7	X132.1
67	X129.2	47	X130.2	28	X131.2	8	X132.2
68	X129.3	48	X130.3	29	X131.3	9	X132.3
69	X133.1	49	X134.1	30	X135.1	10	X136.1
70	X133.2	50	X134.2	31	X135.2	11	X136.2
71	X133.3	51	X134.3	32	X135.3	12	X136.3
72	X137.1	52	X138.1	33	X139.1	13	X140.1
73	X137.2	53	X138.2	34	X139.2	14	X140.2
74	X137.3	54	X138.3	35	X139.3	15	X140.3
75	—	55	—	36	—	16	—
76	—	56	—	37	—	17	—
77	—	57	—	38	—	18	—
78	—	58	—	39	—	19	—
		59	—			20	GND

Figure 5.7 - Pinout for Versions of The 40-592 FIBO Matrix With 3-Pin Breakout - Daughter Board 7



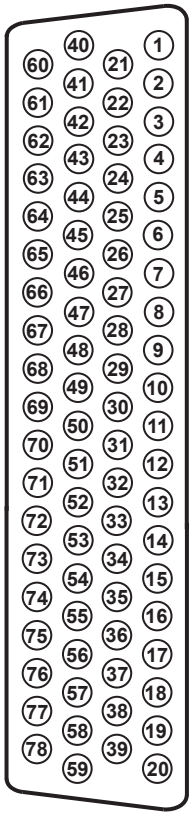
40-592 Daughter Board 8 - 78-pin Male D-type							
Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name
60	X141.1	40	X142.1	21	X143.1	1	X144.1
61	X141.2	41	X142.2	22	X143.2	2	X144.2
62	X141.3	42	X142.3	23	X143.3	3	X144.3
63	X145.1	43	X146.1	24	X147.1	4	X148.1
64	X145.2	44	X146.2	25	X147.2	5	X148.2
65	X145.3	45	X146.3	26	X147.3	6	X148.3
66	X149.1	46	X150.1	27	X151.1	7	X152.1
67	X149.2	47	X150.2	28	X151.2	8	X152.2
68	X159.3	48	X150.3	29	X151.3	9	X152.3
69	X153.1	49	X154.1	30	X155.1	10	X156.1
70	X153.2	50	X154.2	31	X155.2	11	X156.2
71	X153.3	51	X154.3	32	X155.3	12	X156.3
72	X157.1	52	X158.1	33	X159.1	13	X160.1
73	X157.2	53	X158.2	34	X159.2	14	X160.2
74	X157.3	54	X158.3	35	X159.3	15	X160.3
75	—	55	—	36	—	16	—
76	—	56	—	37	—	17	—
77	—	57	—	38	—	18	—
78	—	58	—	39	—	19	—
		59	—			20	GND

Figure 5.8 - Pinout for Versions of The 40-592 FIBO Matrix With 3-Pin Breakout - Daughter Board 8



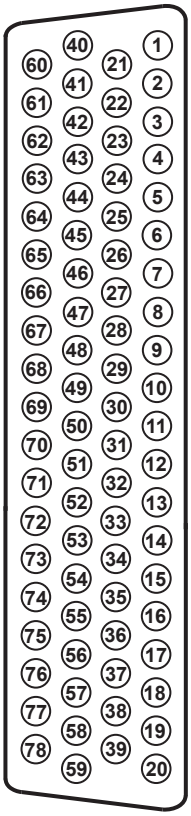
40-592 Daughter Board 1 - 78-pin Male D-type							
Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name
60	X1.1	40	X2.1	21	X3.1	1	X4.1
61	X1.2	41	X2.2	22	X3.2	2	X4.2
62	X5.1	42	X6.1	23	X7.1	3	X8.1
63	X5.2	43	X6.2	24	X7.2	4	X8.2
64	X9.1	44	X10.1	25	X11.1	5	X12.1
65	X9.2	45	X10.2	26	X11.2	6	X12.2
66	X13.1	46	X14.1	27	X15.1	7	X16.1
67	X13.2	47	X14.2	28	X15.2	8	X16.2
68	X17.1	48	X18.1	29	X19.1	9	X20.1
69	X17.2	49	X18.2	30	X19.2	10	X20.2
70	X21.1	50	X22.1	31	X23.1	11	X24.1
71	X21.2	51	X22.2	32	X23.2	12	X24.2
72	X25.1	52	X26.1	33	X27.1	13	X28.1
73	X25.2	53	X26.2	34	X27.2	14	X28.2
74	X29.1	54	X30.1	35	X31.1	15	—
75	X29.2	55	X30.2	36	X31.2	16	—
76	Y1 (Y1)	56	—	37	Y5 (Y3)	17	—
77	Y2 (Y2)	57	Y3 (–)	38	Y6 (Y4)	18	Y7 (–)
78	—	58	Y4 (–)	39	—	19	Y8 (–)
		59	—			20	GND

Figure 5.9 - Pinout for Versions of The 40-592 FIBO Matrix With 2-Pin Breakout - Daughter Board 1
(Note: the signal names in brackets apply to versions with a 4-wire Y-bus)



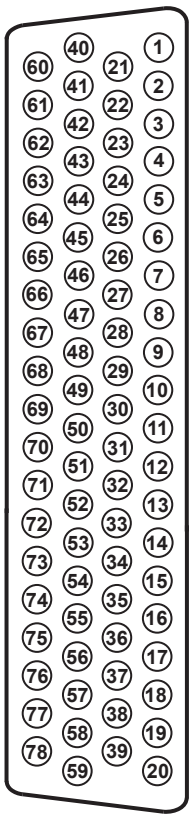
40-592 Daughter Board 2 - 78-pin Male D-type							
Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name
60	X32.1	40	X33.1	21	X34.1	1	X35.1
61	X32.2	41	X33.2	22	X34.2	2	X35.2
62	X36.1	42	X37.1	23	X38.1	3	X39.1
63	X36.2	43	X37.2	24	X38.2	4	X39.2
64	X40.1	44	X41.1	25	X42.1	5	X43.1
65	X40.2	45	X41.2	26	X42.2	6	X43.2
66	X44.1	46	X45.1	27	X46.1	7	X47.1
67	X44.2	47	X45.2	28	X46.2	8	X47.2
68	X48.1	48	X49.1	29	X50.1	9	X51.1
69	X48.2	49	X49.2	30	X50.2	10	X51.2
70	X52.1	50	X53.1	31	X54.1	11	X55.1
71	X52.2	51	X53.2	32	X54.2	12	X55.2
72	X56.1	52	X57.1	33	X58.1	13	X59.1
73	X56.2	53	X57.2	34	X58.2	14	X59.2
74	X60.1	54	X61.1	35	X62.1	15	—
75	X60.2	55	X61.2	36	X62.2	16	—
76	—	56	—	37	—	17	—
77	—	57	—	38	—	18	—
78	—	58	—	39	—	19	—
		59	—			20	GND

Figure 5.10 - Pinout for Versions of The 40-592 FIBO Matrix With 2-Pin Breakout - Daughter Board 2



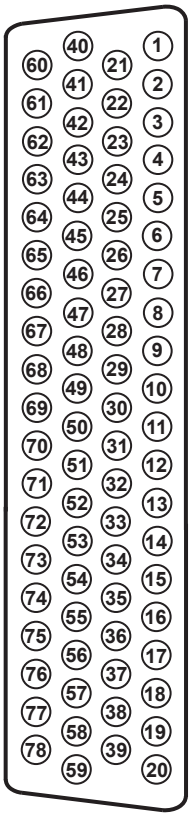
40-592 Daughter Board 3 - 78-pin Male D-type							
Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name
60	X63.1	40	X64.1	21	X65.1	1	X66.1
61	X63.2	41	X64.2	22	X65.2	2	X66.2
62	X67.1	42	X68.1	23	X69.1	3	X70.1
63	X67.2	43	X68.2	24	X69.2	4	X70.2
64	X71.1	44	X72.1	25	X73.1	5	X74.1
65	X71.2	45	X72.2	26	X73.2	6	X74.2
66	X75.1	46	X76.1	27	X77.1	7	X78.1
67	X75.2	47	X76.2	28	X77.2	8	X78.2
68	X79.1	48	X80.1	29	X81.1	9	X82.1
69	X79.2	49	X80.2	30	X81.2	10	X82.2
70	X83.1	50	X84.1	31	X85.1	11	X86.1
71	X83.2	51	X84.2	32	X85.2	12	X86.2
72	X87.1	52	X88.1	33	X89.1	13	X90.1
73	X87.2	53	X88.2	34	X89.2	14	X90.2
74	X91.1	54	X92.1	35	X93.1	15	—
75	X91.2	55	X92.2	36	X93.2	16	—
76	—	56	—	37	—	17	—
77	—	57	—	38	—	18	—
78	—	58	—	39	—	19	—
		59	—			20	GND

Figure 5.11 - Pinout for Versions of The 40-592 FIBO Matrix With 2-Pin Breakout - Daughter Board 3



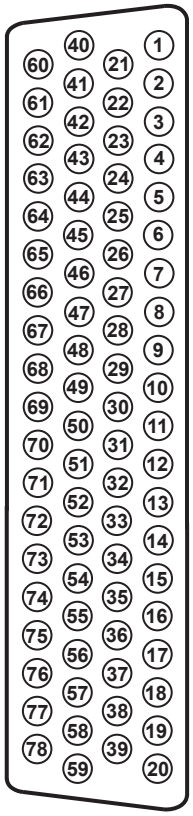
40-592 Daughter Board 4 - 78-pin Male D-type							
Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name
60	X94.1	40	X95.1	21	X96.1	1	X97.1
61	X94.2	41	X95.2	22	X96.2	2	X97.2
62	X98.1	42	X99.1	23	X100.1	3	X101.1
63	X98.2	43	X99.2	24	X100.2	4	X101.2
64	X102.1	44	X103.1	25	X104.1	5	X105.1
65	X102.2	45	X103.2	26	X104.2	6	X105.2
66	X106.1	46	X107.1	27	X108.1	7	X109.1
67	X106.2	47	X107.2	28	X108.2	8	X109.2
68	X110.1	48	X111.1	29	X112.1	9	X113.1
69	X110.2	49	X111.2	30	X112.2	10	X113.2
70	X114.1	50	X115.1	31	X116.1	11	X117.1
71	X114.2	51	X115.2	32	X116.2	12	X117.2
72	X118.1	52	X119.1	33	X120.1	13	X121.1
73	X118.2	53	X119.2	34	X120.2	14	X121.2
74	X122.1	54	X123.1	35	X124.1	15	—
75	X122.2	55	X123.2	36	X124.2	16	—
76	—	56	—	37	—	17	—
77	—	57	—	38	—	18	—
78	—	58	—	39	—	19	—
		59	—			20	GND

Figure 5.12 - Pinout for Versions of The 40-592 FIBO Matrix With 2-Pin Breakout - Daughter Board 4



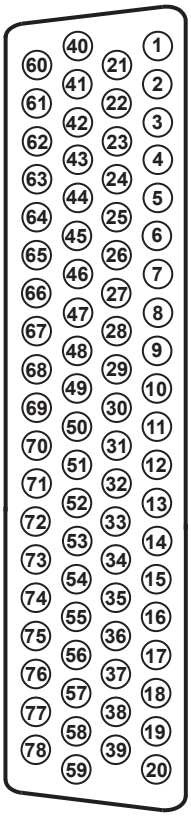
40-592 Daughter Board 5 - 78-pin Male D-type							
Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name
60	X125.1	40	X126.1	21	X127.1	1	X128.1
61	X125.2	41	X126.2	22	X127.2	2	X128.2
62	X129.1	42	X130.1	23	X131.1	3	X132.1
63	X129.2	43	X130.2	24	X131.2	4	X132.2
64	X133.1	44	X134.1	25	X135.1	5	X136.1
65	X133.2	45	X134.2	26	X135.2	6	X136.2
66	X137.1	46	X138.1	27	X139.1	7	X140.1
67	X137.2	47	X138.2	28	X139.2	8	X140.2
68	X141.1	48	X142.1	29	X143.1	9	X144.1
69	X141.2	49	X142.2	30	X143.2	10	X144.2
70	X145.1	50	X146.1	31	X147.1	11	X148.1
71	X145.2	51	X146.2	32	X147.2	12	X148.2
72	X149.1	52	X150.1	33	X151.1	13	X152.1
73	X149.2	53	X150.2	34	X151.2	14	X152.2
74	X153.1	54	X154.1	35	X155.1	15	—
75	X153.2	55	X154.2	36	X155.2	16	—
76	—	56	—	37	—	17	—
77	—	57	—	38	—	18	—
78	—	58	—	39	—	19	—
		59	—			20	GND

Figure 5.13 - Pinout for Versions of The 40-592 FIBO Matrix With 2-Pin Breakout - Daughter Board 5



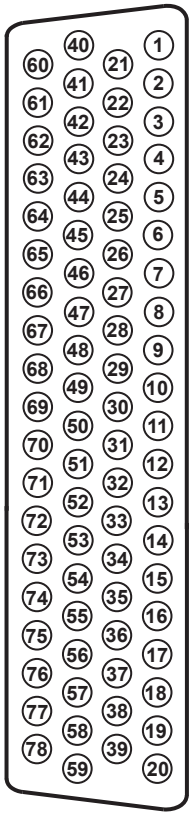
40-592 Daughter Board 6 - 78-pin Male D-type							
Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name
60	X156.1	40	X157.1	21	X158.1	1	X159.1
61	X156.2	41	X157.2	22	X158.2	2	X159.2
62	X160.1	42	X161.1	23	X162.1	3	X163.1
63	X160.2	43	X161.2	24	X162.2	4	X163.2
64	X164.1	44	X165.1	25	X166.1	5	X167.1
65	X164.2	45	X165.2	26	X166.2	6	X167.2
66	X168.1	46	X169.1	27	X170.1	7	X171.1
67	X168.2	47	X169.2	28	X170.2	8	X171.2
68	X172.1	48	X173.1	29	X174.1	9	X175.1
69	X172.2	49	X173.2	30	X174.2	10	X175.2
70	X176.1	50	X177.1	31	X178.1	11	X179.1
71	X176.2	51	X177.2	32	X178.2	12	X179.2
72	X180.1	52	X181.1	33	X182.1	13	X183.1
73	X180.2	53	X181.2	34	X182.2	14	X183.2
74	X184.1	54	X185.1	35	X186.1	15	—
75	X184.2	55	X185.2	36	X186.2	16	—
76	—	56	—	37	—	17	—
77	—	57	—	38	—	18	—
78	—	58	—	39	—	19	—
		59	—			20	GND

Figure 5.14 - Pinout for Versions of The 40-592 FIBO Matrix With 2-Pin Breakout - Daughter Board 6



40-592 Daughter Board 7 - 78-pin Male D-type							
Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name
60	X187.1	40	X188.1	21	X189.1	1	X190.1
61	X187.2	41	X188.2	22	X189.2	2	X190.2
62	X191.1	42	X192.1	23	X193.1	3	X194.1
63	X191.2	43	X192.2	24	X193.2	4	X194.2
64	X195.1	44	X196.1	25	X197.1	5	X198.1
65	X195.2	45	X196.2	26	X197.2	6	X198.2
66	X199.1	46	X200.1	27	X201.1	7	X202.1
67	X199.2	47	X200.2	28	X201.2	8	X202.2
68	X203.1	48	X204.1	29	X205.1	9	X206.1
69	X203.2	49	X204.2	30	X205.2	10	X206.2
70	X207.1	50	X208.1	31	X209.1	11	X210.1
71	X207.2	51	X208.2	32	X209.2	12	X210.2
72	X211.1	52	X212.1	33	X213.1	13	X214.1
73	X211.2	53	X212.2	34	X213.2	14	X214.2
74	X215.1	54	X216.1	35	X217.1	15	—
75	X215.2	55	X216.2	36	X217.2	16	—
76	—	56	—	37	—	17	—
77	—	57	—	38	—	18	—
78	—	58	—	39	—	19	—
		59	—			20	GND

Figure 5.15 - Pinout for Versions of The 40-592 FIBO Matrix With 2-Pin Breakout - Daughter Board 7



40-592 Daughter Board 8 - 78-pin Male D-type							
Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name	Pin Number	Signal Name
60	X218.1	40	X219.1	21	X220.1	1	X221.1
61	X218.2	41	X219.2	22	X220.2	2	X221.2
62	X222.1	42	X223.1	23	X224.1	3	X225.1
63	X222.2	43	X223.2	24	X224.2	4	X225.2
64	X226.1	44	X227.1	25	X228.1	5	X229.1
65	X226.2	45	X227.2	26	X228.2	6	X229.2
66	X230.1	46	X231.1	27	X232.1	7	X233.1
67	X230.2	47	X231.2	28	X232.2	8	X233.2
68	X234.1	48	X235.1	29	X236.1	9	X237.1
69	X234.2	49	X235.2	30	X236.2	10	X237.2
70	X238.1	50	X239.1	31	X240.1	11	X241.1
71	X238.2	51	X239.2	32	X240.2	12	X241.2
72	X242.1	52	X243.1	33	X244.1	13	X245.1
73	X242.2	53	X243.2	34	X244.2	14	X245.2
74	X246.1	54	X247.1	35	X248.1	15	—
75	X246.2	55	X247.2	36	X248.2	16	—
76	—	56	—	37	—	17	—
77	—	57	—	38	—	18	—
78	—	58	—	39	—	19	—
		59	—			20	GND

Figure 5.16 - Pinout for Versions of The 40-592 FIBO Matrix With 2-Pin Breakout - Daughter Board 8

SECTION 6 - TROUBLE SHOOTING

Refer to the Warnings and Cautions at the front of this manual 

INSTALLATION PROBLEMS

The Plug & Play functionality of Pickering switch cards generally ensures trouble-free installation.

If you do experience any installation problems you should first ensure that all cards are properly seated in their slots. Improperly mated cards may go undetected by the operating system, or may be detected as a card of an unknown type. They can also cause the computer to freeze at various stages in the boot sequence.

If your system employs a remote control interface you should check the integrity of all remote control interface links. When the system is powered up, and during Windows start-up, you should expect to see periodic activity on the remote control interface RX/TX (yellow) indicators, clearing to leave only the PWR/LNK (green) LEDs illuminated. The RX/TX indicators should show activity when you attempt to access a card.

DIAGNOSTIC UTILITY

The Pickering Diagnostic Utility (accessible through the Programs>>Pickering>>PXI Utilities menu) generates a diagnostic report of the system's PCI configuration, highlighting any potential configuration problems. Specific details of all installed Pickering switch cards are included. All the installed Pickering switch cards should be listed in the "Pilpxi information" section - if one or more cards is missing it may be possible to determine the reason by referring to the PCI configuration dump contained in the report, but interpretation of this information is far from straightforward, and the best course is to contact Pickering support: support@pickeringtest.com, if possible including a copy of the diagnostic report.

In the "VISA information" section, if VISA is not installed its absence will be reported. This does not affect operation using the Direct I/O driver, and is not a problem unless you wish to use VISA. VISA is a component of National Instruments LabWindows/CVI and LabVIEW, or is available as a standalone environment.

If VISA is present and is of a sufficiently recent version, the section "Pipx40 information" should present a listing similar to "Pilpxi information".

Please note that the Diagnostic Utility cannot access cards if they are currently opened by some other application, such as the Test Panels or Terminal Monitor.

THIS PAGE INTENTIONALLY BLANK

SECTION 7 - MAINTENANCE INFORMATION

Refer to the Warnings and Cautions at the front of this manual 

PERIODIC MAINTENANCE

This product and its corresponding chassis do not require any periodic maintenance.

GENERAL CLEANING

- Isolate the electrical power from the chassis and ensure that no user I/O signals are being applied.
- Wipe the product & chassis surfaces with a clean dry anti-static cloth only.

SOFTWARE UPDATE

For PXI modules operating in a PXI chassis, no module software updates are required. For the latest version of the driver please refer to our web site **pickeringtest.com** where links to our Software Download page will provide the latest version of the driver software for the various programming environments encountered.

For PXI modules which are supported in one of Pickering Interfaces' Modular LXI Chassis (such as the 60-102B and 60-103B) no module software update is required. If the module was introduced after the LXI chassis was manufactured the module may not be recognized, in this case the chassis firmware may need upgrading. This is a simple process which is described in the manual for the Modular LXI Chassis.

FUSE

The backplane of this product is fitted with a resettable fuse to protect the daughter cards. In the event of the fuse tripping please contact support (http://www.pickeringtest.com/support) quoting the module part number.

RELAY LOOK-UP TABLES

This section provides a cross-reference between the location of a matrix crosspoint or breakout switch and the relay ID. Once the position of a faulty relay has been determined, the following tables can be used obtain the relay ID and then the PCB layout diagrams in Figure 7.1 (daughter board with 2-pin breakout), Figure 7.2 (daughter board with 3-pin breakout) and Figure 7.3 (mezzanine matrix board) can be used to identify its physical position.

Note: Replacement of relays should only be carried out by qualified personnel using the correct equipment.

If qualified personnel are not available, or the location of a defective relay cannot be positively determined it is recommended that the module is returned to Pickering Interfaces or a replacement daughter card is ordered.

As an aid to fault finding, relay look-up tables are provided for Crosspoint and Breakout relays as follows:.

- Table 7.1 - 2-Pin breakout versions - Daughter board Number 1 Crosspoint & Breakout Relays
- Table 7.2 - 2-Pin breakout versions - Mezzanine board Number 1 Crosspoint Relays
- Table 7.3 - 2-Pin breakout versions - Daughter board Number 2 Crosspoint & Breakout Relays
- Table 7.4 - 2-Pin breakout versions - Mezzanine board Number 2 Crosspoint Relays
- Table 7.5 - 2-Pin breakout versions - Daughter board Number 3 Crosspoint & Breakout Relays
- Table 7.6 - 2-Pin breakout versions - Mezzanine board Number 3 Crosspoint Relays
- Table 7.7 - 2-Pin breakout versions - Daughter board Number 4 Crosspoint & Breakout Relays
- Table 7.8 - 2-Pin breakout versions - Mezzanine board Number 4 Crosspoint Relays
- Table 7.9 - 2-Pin breakout versions - Daughter board Number 5 Crosspoint & Breakout Relays
- Table 7.10 - 2-Pin breakout versions - Mezzanine board Number 5 Crosspoint Relays
- Table 7.11 - 2-Pin breakout versions - Daughter board Number 6 Crosspoint & Breakout Relays
- Table 7.12 - 2-Pin breakout versions - Mezzanine board Number 6 Crosspoint Relays
- Table 7.13 - 2-Pin breakout versions - Daughter board Number 7 Crosspoint & Breakout Relays
- Table 7.14 - 2-Pin breakout versions - Mezzanine board Number 7 Crosspoint Relays
- Table 7.15 - 2-Pin breakout versions - Daughter board Number 8 Crosspoint & Breakout Relays
- Table 7.16 - 2-Pin breakout versions - Mezzanine board Number 8 Crosspoint Relays
- Table 7.17 - 3-Pin breakout versions - Daughter board Number 1 Breakout Relays
- Table 7.18 - 3-Pin breakout versions - Mezzanine board Number 1 Crosspoint Relays
- Table 7.19 - 3-Pin breakout versions - Daughter board Number 2 Breakout Relays
- Table 7.20 - 3-Pin breakout versions - Mezzanine board Number 2 Crosspoint Relays
- Table 7.21 - 3-Pin breakout versions - Daughter board Number 3 Breakout Relays
- Table 7.22 - 3-Pin breakout versions - Mezzanine board Number 3 Crosspoint Relays
- Table 7.23 - 3-Pin breakout versions - Daughter board Number 4 Breakout Relays
- Table 7.24 - 3-Pin breakout versions - Mezzanine board Number 4 Crosspoint Relays
- Table 7.25 - 3-Pin breakout versions - Daughter board Number 5 Breakout Relays
- Table 7.26 - 3-Pin breakout versions - Mezzanine board Number 5 Crosspoint Relays
- Table 7.27 - 3-Pin breakout versions - Daughter board Number 6 Breakout Relays
- Table 7.28 - 3-Pin breakout versions - Mezzanine board Number 6 Crosspoint Relays
- Table 7.29 - 3-Pin breakout versions - Daughter board Number 7 Breakout Relays
- Table 7.30 - 3-Pin breakout versions - Mezzanine board Number 7 Crosspoint Relays
- Table 7.31 - 3-Pin breakout versions - Daughter board Number 8 Breakout Relays
- Table 7.32 - 3-Pin breakout versions - Mezzanine board Number 8 Crosspoint Relays

TABLE 7.1 - 40-592 2-Pin Breakout Versions - Daughter Board 1 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Switch Function	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
Isolation X1	89	21	1 (1)	1	25	1 (1)	33	29	1 (1)	65
Isolation X2	90	21	2 (2)	2	25	2 (2)	34	29	2 (2)	66
Isolation X3	91	21	3 (-)	3	25	3 (-)	35	29	3 (-)	67
Isolation X4	92	21	4 (-)	4	25	4 (-)	36	29	4 (-)	68
Isolation X5	93	21	5 (3)	5	25	5 (3)	37	29	5 (3)	69
Isolation X6	94	21	6 (4)	6	25	6 (4)	38	29	6 (4)	70
Isolation X7	95	21	7 (-)	7	25	7 (-)	39	29	7 (-)	71
Isolation X8	96	21	8 (-)	8	25	8 (-)	40	29	8 (-)	72
Isolation X9	97	22	1 (1)	9	26	1 (1)	41	30	1 (1)	73
Isolation X10	98	22	2 (2)	10	26	2 (2)	42	30	2 (2)	74
Isolation X11	99	22	3 (-)	11	26	3 (-)	43	30	3 (-)	75
Isolation X12	100	22	4 (-)	12	26	4 (-)	44	30	4 (-)	76
Isolation X13	101	22	5 (3)	13	26	5 (3)	45	30	5 (3)	77
Isolation X14	102	22	6 (4)	14	26	6 (4)	46	30	6 (4)	78
Isolation X15	103	22	7 (-)	15	26	7 (-)	47	30	7 (-)	79
Isolation X16	104	22	8 (-)	16	26	8 (-)	48	30	8 (-)	80
Isolation X17	105	23	1 (1)	17	27	1 (1)	49	31	1 (1)	81
Isolation X18	106	23	2 (2)	18	27	2 (2)	50	31	2 (2)	82
Isolation X19	107	23	3 (-)	19	27	3 (-)	51	31	3 (-)	83
Isolation X20	108	23	4 (-)	20	27	4 (-)	52	31	4 (-)	84
Isolation X21	109	23	5 (3)	21	27	5 (3)	53	31	5 (3)	85
Isolation X22	110	23	6 (4)	22	27	6 (4)	54	31	6 (4)	86
Isolation X23	111	23	7 (-)	23	27	7 (-)	55	31	7 (-)	87
Isolation X24	112	23	8 (-)	24	27	8 (-)	56	31	8 (-)	88
Isolation X25	113	24	1 (1)	25	28	1 (1)	57			
Isolation X26	114	24	2 (2)	26	28	2 (2)	58			
Isolation X27	115	24	3 (-)	27	28	3 (-)	59			
Isolation X28	116	24	4 (-)	28	28	4 (-)	60			
Isolation X29	117	24	5 (3)	29	28	5 (3)	61			
Isolation X30	118	24	6 (4)	30	28	6 (4)	62			
Isolation X31	119	24	7 (-)	31	28	7 (-)	63			
		24	8 (-)	32	28	8 (-)	64			

TABLE 7.2 - 40-592 2-Pin Breakout Versions - Mezzanine Board 1 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
1	1 (1)	1	5	1 (1)	33	9	1 (1)	65	13	1 (1)	97	17	1 (1)	129
1	2 (2)	2	5	2 (2)	34	9	2 (2)	66	13	2 (2)	98	17	2 (2)	130
1	3 (-)	3	5	3 (-)	35	9	3 (-)	67	13	3 (-)	99	17	3 (-)	131
1	4 (-)	4	5	4 (-)	36	9	4 (-)	68	13	4 (-)	100	17	4 (-)	132
1	5 (3)	5	5	5 (3)	37	9	5 (3)	69	13	5 (3)	101	17	5 (3)	133
1	6 (4)	6	5	6 (4)	38	9	6 (4)	70	13	6 (4)	102	17	6 (4)	134
1	7 (-)	7	5	7 (-)	39	9	7 (-)	71	13	7 (-)	103	17	7 (-)	135
1	8 (-)	8	5	8 (-)	40	9	8 (-)	72	13	8 (-)	104	17	8 (-)	136
2	1 (1)	9	6	1 (1)	41	10	1 (1)	73	14	1 (1)	105	18	1 (1)	137
2	2 (2)	10	6	2 (2)	42	10	2 (2)	74	14	2 (2)	106	18	2 (2)	138
2	3 (-)	11	6	3 (-)	43	10	3 (-)	75	14	3 (-)	107	18	3 (-)	139
2	4 (-)	12	6	4 (-)	44	10	4 (-)	76	14	4 (-)	108	18	4 (-)	140
2	5 (3)	13	6	5 (3)	45	10	5 (3)	77	14	5 (3)	109	18	5 (3)	141
2	6 (4)	14	6	6 (4)	46	10	6 (4)	78	14	6 (4)	110	18	6 (4)	142
2	7 (-)	15	6	7 (-)	47	10	7 (-)	79	14	7 (-)	111	18	7 (-)	143
2	8 (-)	16	6	8 (-)	48	10	8 (-)	80	14	8 (-)	112	18	8 (-)	144
3	1 (1)	17	7	1 (1)	49	11	1 (1)	81	15	1 (1)	113	19	1 (1)	145
3	2 (2)	18	7	2 (2)	50	11	2 (2)	82	15	2 (2)	114	19	2 (2)	146
3	3 (-)	19	7	3 (-)	51	11	3 (-)	83	15	3 (-)	115	19	3 (-)	147
3	4 (-)	20	7	4 (-)	52	11	4 (-)	84	15	4 (-)	116	19	4 (-)	148
3	5 (3)	21	7	5 (3)	53	11	5 (3)	85	15	5 (3)	117	19	5 (3)	149
3	6 (4)	22	7	6 (4)	54	11	6 (4)	86	15	6 (4)	118	19	6 (4)	150
3	7 (-)	23	7	7 (-)	55	11	7 (-)	87	15	7 (-)	119	19	7 (-)	151
3	8 (-)	24	7	8 (-)	56	11	8 (-)	88	15	8 (-)	120	19	8 (-)	152
4	1 (1)	25	8	1 (1)	57	12	1 (1)	89	16	1 (1)	121	20	1 (1)	153
4	2 (2)	26	8	2 (2)	58	12	2 (2)	90	16	2 (2)	122	20	2 (2)	154
4	3 (-)	27	8	3 (-)	59	12	3 (-)	91	16	3 (-)	123	20	3 (-)	155
4	4 (-)	28	8	4 (-)	60	12	4 (-)	92	16	4 (-)	124	20	4 (-)	156
4	5 (3)	29	8	5 (3)	61	12	5 (3)	93	16	5 (3)	125	20	5 (3)	157
4	6 (4)	30	8	6 (4)	62	12	6 (4)	94	16	6 (4)	126	20	6 (4)	158
4	7 (-)	31	8	7 (-)	63	12	7 (-)	95	16	7 (-)	127	20	7 (-)	159
4	8 (-)	32	8	8 (-)	64	12	8 (-)	96	16	8 (-)	128	20	8 (-)	160

TABLE 7.3 - 40-592 2-Pin Breakout Versions - Daughter Board 2 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Switch Function	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
Isolation X32	89	52	1 (1)	1	56	1 (1)	33	60	1 (1)	65
Isolation X33	90	52	2 (2)	2	56	2 (2)	34	60	2 (2)	66
Isolation X34	91	52	3 (-)	3	56	3 (-)	35	60	3 (-)	67
Isolation X35	92	52	4 (-)	4	56	4 (-)	36	60	4 (-)	68
Isolation X36	93	52	5 (3)	5	56	5 (3)	37	60	5 (3)	69
Isolation X37	94	52	6 (4)	6	56	6 (4)	38	60	6 (4)	70
Isolation X38	95	52	7 (-)	7	56	7 (-)	39	60	7 (-)	71
Isolation X39	96	52	8 (-)	8	56	8 (-)	40	60	8 (-)	72
Isolation X40	97	53	1 (1)	9	57	1 (1)	41	61	1 (1)	73
Isolation X41	98	53	2 (2)	10	57	2 (2)	42	61	2 (2)	74
Isolation X42	99	53	3 (-)	11	57	3 (-)	43	61	3 (-)	75
Isolation X43	100	53	4 (-)	12	57	4 (-)	44	61	4 (-)	76
Isolation X44	101	53	5 (3)	13	57	5 (3)	45	61	5 (3)	77
Isolation X45	102	53	6 (4)	14	57	6 (4)	46	61	6 (4)	78
Isolation X46	103	53	7 (-)	15	57	7 (-)	47	61	7 (-)	79
Isolation X47	104	53	8 (-)	16	57	8 (-)	48	61	8 (-)	80
Isolation X48	105	54	1 (1)	17	58	1 (1)	49	62	1 (1)	81
Isolation X49	106	54	2 (2)	18	58	2 (2)	50	62	2 (2)	82
Isolation X50	107	54	3 (-)	19	58	3 (-)	51	62	3 (-)	83
Isolation X51	108	54	4 (-)	20	58	4 (-)	52	62	4 (-)	84
Isolation X52	109	54	5 (3)	21	58	5 (3)	53	62	5 (3)	85
Isolation X53	110	54	6 (4)	22	58	6 (4)	54	62	6 (4)	86
Isolation X54	111	54	7 (-)	23	58	7 (-)	55	62	7 (-)	87
Isolation X55	112	54	8 (-)	24	58	8 (-)	56	62	8 (-)	88
Isolation X56	113	55	1 (1)	25	59	1 (1)	57			
Isolation X57	114	55	2 (2)	26	59	2 (2)	58			
Isolation X58	115	55	3 (-)	27	59	3 (-)	59			
Isolation X59	116	55	4 (-)	28	59	4 (-)	60			
Isolation X60	117	55	5 (3)	29	59	5 (3)	61			
Isolation X61	118	55	6 (4)	30	59	6 (4)	62			
Isolation X62	119	55	7 (-)	31	59	7 (-)	63			
		55	8 (-)	32	59	8 (-)	64			

TABLE 7.4 - 40-592 2-Pin Breakout Versions - Mezzanine Board 2 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
32	1 (1)	1	36	1 (1)	33	40	1 (1)	65	44	1 (1)	97	48	1 (1)	129
32	2 (2)	2	36	2 (2)	34	40	2 (2)	66	44	2 (2)	98	48	2 (2)	130
32	3 (-)	3	36	3 (-)	35	40	3 (-)	67	44	3 (-)	99	48	3 (-)	131
32	4 (-)	4	36	4 (-)	36	40	4 (-)	68	44	4 (-)	100	48	4 (-)	132
32	5 (3)	5	36	5 (3)	37	40	5 (3)	69	44	5 (3)	101	48	5 (3)	133
32	6 (4)	6	36	6 (4)	38	40	6 (4)	70	44	6 (4)	102	48	6 (4)	134
32	7 (-)	7	36	7 (-)	39	40	7 (-)	71	44	7 (-)	103	48	7 (-)	135
32	8 (-)	8	36	8 (-)	40	40	8 (-)	72	44	8 (-)	104	48	8 (-)	136
33	1 (1)	9	37	1 (1)	41	41	1 (1)	73	45	1 (1)	105	49	1 (1)	137
33	2 (2)	10	37	2 (2)	42	41	2 (2)	74	45	2 (2)	106	49	2 (2)	138
33	3 (-)	11	37	3 (-)	43	41	3 (-)	75	45	3 (-)	107	49	3 (-)	139
33	4 (-)	12	37	4 (-)	44	41	4 (-)	76	45	4 (-)	108	49	4 (-)	140
33	5 (3)	13	37	5 (3)	45	41	5 (3)	77	45	5 (3)	109	49	5 (3)	141
33	6 (4)	14	37	6 (4)	46	41	6 (4)	78	45	6 (4)	110	49	6 (4)	142
33	7 (-)	15	37	7 (-)	47	41	7 (-)	79	45	7 (-)	111	49	7 (-)	143
33	8 (-)	16	37	8 (-)	48	41	8 (-)	80	45	8 (-)	112	49	8 (-)	144
34	1 (1)	17	38	1 (1)	49	42	1 (1)	81	46	1 (1)	113	50	1 (1)	145
34	2 (2)	18	38	2 (2)	50	42	2 (2)	82	46	2 (2)	114	50	2 (2)	146
34	3 (-)	19	38	3 (-)	51	42	3 (-)	83	46	3 (-)	115	50	3 (-)	147
34	4 (-)	20	38	4 (-)	52	42	4 (-)	84	46	4 (-)	116	50	4 (-)	148
34	5 (3)	21	38	5 (3)	53	42	5 (3)	85	46	5 (3)	117	50	5 (3)	149
34	6 (4)	22	38	6 (4)	54	42	6 (4)	86	46	6 (4)	118	50	6 (4)	150
34	7 (-)	23	38	7 (-)	55	42	7 (-)	87	46	7 (-)	119	50	7 (-)	151
34	8 (-)	24	38	8 (-)	56	42	8 (-)	88	46	8 (-)	120	50	8 (-)	152
35	1 (1)	25	39	1 (1)	57	43	1 (1)	89	47	1 (1)	121	51	1 (1)	153
35	2 (2)	26	39	2 (2)	58	43	2 (2)	90	47	2 (2)	122	51	2 (2)	154
35	3 (-)	27	39	3 (-)	59	43	3 (-)	91	47	3 (-)	123	51	3 (-)	155
35	4 (-)	28	39	4 (-)	60	43	4 (-)	92	47	4 (-)	124	51	4 (-)	156
35	5 (3)	29	39	5 (3)	61	43	5 (3)	93	47	5 (3)	125	51	5 (3)	157
35	6 (4)	30	39	6 (4)	62	43	6 (4)	94	47	6 (4)	126	51	6 (4)	158
35	7 (-)	31	39	7 (-)	63	43	7 (-)	95	47	7 (-)	127	51	7 (-)	159
35	8 (-)	32	39	8 (-)	64	43	8 (-)	96	47	8 (-)	128	51	8 (-)	160

TABLE 7.5 - 40-592 2-Pin Breakout Versions - Daughter Board 3 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Switch Function	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
Isolation X63	89	83	1 (1)	1	87	1 (1)	33	91	1 (1)	65
Isolation X64	90	83	2 (2)	2	87	2 (2)	34	91	2 (2)	66
Isolation X65	91	83	3 (-)	3	87	3 (-)	35	91	3 (-)	67
Isolation X66	92	83	4 (-)	4	87	4 (-)	36	91	4 (-)	68
Isolation X67	93	83	5 (3)	5	87	5 (3)	37	91	5 (3)	69
Isolation X68	94	83	6 (4)	6	87	6 (4)	38	91	6 (4)	70
Isolation X69	95	83	7 (-)	7	87	7 (-)	39	91	7 (-)	71
Isolation X70	96	83	8 (-)	8	87	8 (-)	40	91	8 (-)	72
Isolation X71	97	84	1 (1)	9	88	1 (1)	41	92	1 (1)	73
Isolation X72	98	84	2 (2)	10	88	2 (2)	42	92	2 (2)	74
Isolation X73	99	84	3 (-)	11	88	3 (-)	43	92	3 (-)	75
Isolation X74	100	84	4 (-)	12	88	4 (-)	44	92	4 (-)	76
Isolation X75	101	84	5 (3)	13	88	5 (3)	45	92	5 (3)	77
Isolation X76	102	84	6 (4)	14	88	6 (4)	46	92	6 (4)	78
Isolation X77	103	84	7 (-)	15	88	7 (-)	47	92	7 (-)	79
Isolation X78	104	84	8 (-)	16	88	8 (-)	48	92	8 (-)	80
Isolation X79	105	85	1 (1)	17	89	1 (1)	49	93	1 (1)	81
Isolation X80	106	85	2 (2)	18	89	2 (2)	50	93	2 (2)	82
Isolation X81	107	85	3 (-)	19	89	3 (-)	51	93	3 (-)	83
Isolation X82	108	85	4 (-)	20	89	4 (-)	52	93	4 (-)	84
Isolation X83	109	85	5 (3)	21	89	5 (3)	53	93	5 (3)	85
Isolation X84	110	85	6 (4)	22	89	6 (4)	54	93	6 (4)	86
Isolation X85	111	85	7 (-)	23	89	7 (-)	55	93	7 (-)	87
Isolation X86	112	85	8 (-)	24	89	8 (-)	56	93	8 (-)	88
Isolation X87	113	86	1 (1)	25	90	1 (1)	57			
Isolation X88	114	86	2 (2)	26	90	2 (2)	58			
Isolation X89	115	86	3 (-)	27	90	3 (-)	59			
Isolation X90	116	86	4 (-)	28	90	4 (-)	60			
Isolation X91	117	86	5 (3)	29	90	5 (3)	61			
Isolation X92	118	86	6 (4)	30	90	6 (4)	62			
Isolation X93	119	86	7 (-)	31	90	7 (-)	63			
		86	8 (-)	32	90	8 (-)	64			

TABLE 7.6 - 40-592 2-Pin Breakout Versions - Mezzanine Board 3 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
63	1 (1)	1	67	1 (1)	33	71	1 (1)	65	75	1 (1)	97	79	1 (1)	129
63	2 (2)	2	67	2 (2)	34	71	2 (2)	66	75	2 (2)	98	79	2 (2)	130
63	3 (-)	3	67	3 (-)	35	71	3 (-)	67	75	3 (-)	99	79	3 (-)	131
63	4 (-)	4	67	4 (-)	36	71	4 (-)	68	75	4 (-)	100	79	4 (-)	132
63	5 (3)	5	67	5 (3)	37	71	5 (3)	69	75	5 (3)	101	79	5 (3)	133
63	6 (4)	6	67	6 (4)	38	71	6 (4)	70	75	6 (4)	102	79	6 (4)	134
63	7 (-)	7	67	7 (-)	39	71	7 (-)	71	75	7 (-)	103	79	7 (-)	135
63	8 (-)	8	67	8 (-)	40	71	8 (-)	72	75	8 (-)	104	79	8 (-)	136
64	1 (1)	9	68	1 (1)	41	72	1 (1)	73	76	1 (1)	105	80	1 (1)	137
64	2 (2)	10	68	2 (2)	42	72	2 (2)	74	76	2 (2)	106	80	2 (2)	138
64	3 (-)	11	68	3 (-)	43	72	3 (-)	75	76	3 (-)	107	80	3 (-)	139
64	4 (-)	12	68	4 (-)	44	72	4 (-)	76	76	4 (-)	108	80	4 (-)	140
64	5 (3)	13	68	5 (3)	45	72	5 (3)	77	76	5 (3)	109	80	5 (3)	141
64	6 (4)	14	68	6 (4)	46	72	6 (4)	78	76	6 (4)	110	80	6 (4)	142
64	7 (-)	15	68	7 (-)	47	72	7 (-)	79	76	7 (-)	111	80	7 (-)	143
64	8 (-)	16	68	8 (-)	48	72	8 (-)	80	76	8 (-)	112	80	8 (-)	144
65	1 (1)	17	69	1 (1)	49	73	1 (1)	81	77	1 (1)	113	81	1 (1)	145
65	2 (2)	18	69	2 (2)	50	73	2 (2)	82	77	2 (2)	114	81	2 (2)	146
65	3 (-)	19	69	3 (-)	51	73	3 (-)	83	77	3 (-)	115	81	3 (-)	147
65	4 (-)	20	69	4 (-)	52	73	4 (-)	84	77	4 (-)	116	81	4 (-)	148
65	5 (3)	21	69	5 (3)	53	73	5 (3)	85	77	5 (3)	117	81	5 (3)	149
65	6 (4)	22	69	6 (4)	54	73	6 (4)	86	77	6 (4)	118	81	6 (4)	150
65	7 (-)	23	69	7 (-)	55	73	7 (-)	87	77	7 (-)	119	81	7 (-)	151
65	8 (-)	24	69	8 (-)	56	73	8 (-)	88	77	8 (-)	120	81	8 (-)	152
66	1 (1)	25	70	1 (1)	57	74	1 (1)	89	78	1 (1)	121	82	1 (1)	153
66	2 (2)	26	70	2 (2)	58	74	2 (2)	90	78	2 (2)	122	82	2 (2)	154
66	3 (-)	27	70	3 (-)	59	74	3 (-)	91	78	3 (-)	123	82	3 (-)	155
66	4 (-)	28	70	4 (-)	60	74	4 (-)	92	78	4 (-)	124	82	4 (-)	156
66	5 (3)	29	70	5 (3)	61	74	5 (3)	93	78	5 (3)	125	82	5 (3)	157
66	6 (4)	30	70	6 (4)	62	74	6 (4)	94	78	6 (4)	126	82	6 (4)	158
66	7 (-)	31	70	7 (-)	63	74	7 (-)	95	78	7 (-)	127	82	7 (-)	159
66	8 (-)	32	70	8 (-)	64	74	8 (-)	96	78	8 (-)	128	82	8 (-)	160

TABLE 7.7 - 40-592 2-Pin Breakout Versions - Daughter Board 4 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Switch Function	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
Isolation X94	89	114	1 (1)	1	118	1 (1)	33	122	1 (1)	65
Isolation X95	90	114	2 (2)	2	118	2 (2)	34	122	2 (2)	66
Isolation X96	91	114	3 (-)	3	118	3 (-)	35	122	3 (-)	67
Isolation X97	92	114	4 (-)	4	118	4 (-)	36	122	4 (-)	68
Isolation X98	93	114	5 (3)	5	118	5 (3)	37	122	5 (3)	69
Isolation X99	94	114	6 (4)	6	118	6 (4)	38	122	6 (4)	70
Isolation X100	95	114	7 (-)	7	118	7 (-)	39	122	7 (-)	71
Isolation X101	96	114	8 (-)	8	118	8 (-)	40	122	8 (-)	72
Isolation X102	97	115	1 (1)	9	119	1 (1)	41	123	1 (1)	73
Isolation X103	98	115	2 (2)	10	119	2 (2)	42	123	2 (2)	74
Isolation X104	99	115	3 (-)	11	119	3 (-)	43	123	3 (-)	75
Isolation X105	100	115	4 (-)	12	119	4 (-)	44	123	4 (-)	76
Isolation X106	101	115	5 (3)	13	119	5 (3)	45	123	5 (3)	77
Isolation X107	102	115	6 (4)	14	119	6 (4)	46	123	6 (4)	78
Isolation X108	103	115	7 (-)	15	119	7 (-)	47	123	7 (-)	79
Isolation X109	104	115	8 (-)	16	119	8 (-)	48	123	8 (-)	80
Isolation X110	105	116	1 (1)	17	120	1 (1)	49	124	1 (1)	81
Isolation X111	106	116	2 (2)	18	120	2 (2)	50	124	2 (2)	82
Isolation X112	107	116	3 (-)	19	120	3 (-)	51	124	3 (-)	83
Isolation X113	108	116	4 (-)	20	120	4 (-)	52	124	4 (-)	84
Isolation X114	109	116	5 (3)	21	120	5 (3)	53	124	5 (3)	85
Isolation X115	110	116	6 (4)	22	120	6 (4)	54	124	6 (4)	86
Isolation X116	111	116	7 (-)	23	120	7 (-)	55	124	7 (-)	87
Isolation X117	112	116	8 (-)	24	120	8 (-)	56	124	8 (-)	88
Isolation X118	113	117	1 (1)	25	121	1 (1)	57			
Isolation X119	114	117	2 (2)	26	121	2 (2)	58			
Isolation X120	115	117	3 (-)	27	121	3 (-)	59			
Isolation X121	116	117	4 (-)	28	121	4 (-)	60			
Isolation X122	117	117	5 (3)	29	121	5 (3)	61			
Isolation X123	118	117	6 (4)	30	121	6 (4)	62			
Isolation X124	119	117	7 (-)	31	121	7 (-)	63			
		117	8 (-)	32	121	8 (-)	64			

TABLE 7.8 - 40-592 2-Pin Breakout Versions - Mezzanine Board 4 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
94	1 (1)	1	98	1 (1)	33	102	1 (1)	65	106	1 (1)	97	110	1 (1)	129
94	2 (2)	2	98	2 (2)	34	102	2 (2)	66	106	2 (2)	98	110	2 (2)	130
94	3 (-)	3	98	3 (-)	35	102	3 (-)	67	106	3 (-)	99	110	3 (-)	131
94	4 (-)	4	98	4 (-)	36	102	4 (-)	68	106	4 (-)	100	110	4 (-)	132
94	5 (3)	5	98	5 (3)	37	102	5 (3)	69	106	5 (3)	101	110	5 (3)	133
94	6 (4)	6	98	6 (4)	38	102	6 (4)	70	106	6 (4)	102	110	6 (4)	134
94	7 (-)	7	98	7 (-)	39	102	7 (-)	71	106	7 (-)	103	110	7 (-)	135
94	8 (-)	8	98	8 (-)	40	102	8 (-)	72	106	8 (-)	104	110	8 (-)	136
95	1 (1)	9	99	1 (1)	41	103	1 (1)	73	107	1 (1)	105	111	1 (1)	137
95	2 (2)	10	99	2 (2)	42	103	2 (2)	74	107	2 (2)	106	111	2 (2)	138
95	3 (-)	11	99	3 (-)	43	103	3 (-)	75	107	3 (-)	107	111	3 (-)	139
95	4 (-)	12	99	4 (-)	44	103	4 (-)	76	107	4 (-)	108	111	4 (-)	140
95	5 (3)	13	99	5 (3)	45	103	5 (3)	77	107	5 (3)	109	111	5 (3)	141
95	6 (4)	14	99	6 (4)	46	103	6 (4)	78	107	6 (4)	110	111	6 (4)	142
95	7 (-)	15	99	7 (-)	47	103	7 (-)	79	107	7 (-)	111	111	7 (-)	143
95	8 (-)	16	99	8 (-)	48	103	8 (-)	80	107	8 (-)	112	111	8 (-)	144
96	1 (1)	17	100	1 (1)	49	104	1 (1)	81	108	1 (1)	113	112	1 (1)	145
96	2 (2)	18	100	2 (2)	50	104	2 (2)	82	108	2 (2)	114	112	2 (2)	146
96	3 (-)	19	100	3 (-)	51	104	3 (-)	83	108	3 (-)	115	112	3 (-)	147
96	4 (-)	20	100	4 (-)	52	104	4 (-)	84	108	4 (-)	116	112	4 (-)	148
96	5 (3)	21	100	5 (3)	53	104	5 (3)	85	108	5 (3)	117	112	5 (3)	149
96	6 (4)	22	100	6 (4)	54	104	6 (4)	86	108	6 (4)	118	112	6 (4)	150
96	7 (-)	23	100	7 (-)	55	104	7 (-)	87	108	7 (-)	119	112	7 (-)	151
96	8 (-)	24	100	8 (-)	56	104	8 (-)	88	108	8 (-)	120	112	8 (-)	152
97	1 (1)	25	101	1 (1)	57	105	1 (1)	89	109	1 (1)	121	113	1 (1)	153
97	2 (2)	26	101	2 (2)	58	105	2 (2)	90	109	2 (2)	122	113	2 (2)	154
97	3 (-)	27	101	3 (-)	59	105	3 (-)	91	109	3 (-)	123	113	3 (-)	155
97	4 (-)	28	101	4 (-)	60	105	4 (-)	92	109	4 (-)	124	113	4 (-)	156
97	5 (3)	29	101	5 (3)	61	105	5 (3)	93	109	5 (3)	125	113	5 (3)	157
97	6 (4)	30	101	6 (4)	62	105	6 (4)	94	109	6 (4)	126	113	6 (4)	158
97	7 (-)	31	101	7 (-)	63	105	7 (-)	95	109	7 (-)	127	113	7 (-)	159
97	8 (-)	32	101	8 (-)	64	105	8 (-)	96	109	8 (-)	128	113	8 (-)	160

TABLE 7.9 - 40-592 2-Pin Breakout Versions - Daughter Board 5 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Switch Function	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
Isolation X125	89	145	1 (1)	1	149	1 (1)	33	153	1 (1)	65
Isolation X126	90	145	2 (2)	2	149	2 (2)	34	153	2 (2)	66
Isolation X127	91	145	3 (-)	3	149	3 (-)	35	153	3 (-)	67
Isolation X128	92	145	4 (-)	4	149	4 (-)	36	153	4 (-)	68
Isolation X129	93	145	5 (3)	5	149	5 (3)	37	153	5 (3)	69
Isolation X130	94	145	6 (4)	6	149	6 (4)	38	153	6 (4)	70
Isolation X131	95	145	7 (-)	7	149	7 (-)	39	153	7 (-)	71
Isolation X132	96	145	8 (-)	8	149	8 (-)	40	153	8 (-)	72
Isolation X133	97	146	1 (1)	9	150	1 (1)	41	154	1 (1)	73
Isolation X134	98	146	2 (2)	10	150	2 (2)	42	154	2 (2)	74
Isolation X135	99	146	3 (-)	11	150	3 (-)	43	154	3 (-)	75
Isolation X136	100	146	4 (-)	12	150	4 (-)	44	154	4 (-)	76
Isolation X137	101	146	5 (3)	13	150	5 (3)	45	154	5 (3)	77
Isolation X138	102	146	6 (4)	14	150	6 (4)	46	154	6 (4)	78
Isolation X139	103	146	7 (-)	15	150	7 (-)	47	154	7 (-)	79
Isolation X140	104	146	8 (-)	16	150	8 (-)	48	154	8 (-)	80
Isolation X141	105	147	1 (1)	17	151	1 (1)	49	155	1 (1)	81
Isolation X142	106	147	2 (2)	18	151	2 (2)	50	155	2 (2)	82
Isolation X143	107	147	3 (-)	19	151	3 (-)	51	155	3 (-)	83
Isolation X144	108	147	4 (-)	20	151	4 (-)	52	155	4 (-)	84
Isolation X145	109	147	5 (3)	21	151	5 (3)	53	155	5 (3)	85
Isolation X146	110	147	6 (4)	22	151	6 (4)	54	155	6 (4)	86
Isolation X147	111	147	7 (-)	23	151	7 (-)	55	155	7 (-)	87
Isolation X148	112	147	8 (-)	24	151	8 (-)	56	155	8 (-)	88
Isolation X149	113	148	1 (1)	25	152	1 (1)	57			
Isolation X150	114	148	2 (2)	26	152	2 (2)	58			
Isolation X151	115	148	3 (-)	27	152	3 (-)	59			
Isolation X152	116	148	4 (-)	28	152	4 (-)	60			
Isolation X153	117	148	5 (3)	29	152	5 (3)	61			
Isolation X154	118	148	6 (4)	30	152	6 (4)	62			
Isolation X155	119	148	7 (-)	31	152	7 (-)	63			
		148	8 (-)	32	152	8 (-)	64			

TABLE 7.10 - 40-592 2-Pin Breakout Versions - Mezzanine Board 5 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
125	1 (1)	1	129	1 (1)	33	133	1 (1)	65	137	1 (1)	97	141	1 (1)	129
125	2 (2)	2	129	2 (2)	34	133	2 (2)	66	137	2 (2)	98	141	2 (2)	130
125	3 (-)	3	129	3 (-)	35	133	3 (-)	67	137	3 (-)	99	141	3 (-)	131
125	4 (-)	4	129	4 (-)	36	133	4 (-)	68	137	4 (-)	100	141	4 (-)	132
125	5 (3)	5	129	5 (3)	37	133	5 (3)	69	137	5 (3)	101	141	5 (3)	133
125	6 (4)	6	129	6 (4)	38	133	6 (4)	70	137	6 (4)	102	141	6 (4)	134
125	7 (-)	7	129	7 (-)	39	133	7 (-)	71	137	7 (-)	103	141	7 (-)	135
125	8 (-)	8	129	8 (-)	40	133	8 (-)	72	137	8 (-)	104	141	8 (-)	136
126	1 (1)	9	130	1 (1)	41	134	1 (1)	73	138	1 (1)	105	142	1 (1)	137
126	2 (2)	10	130	2 (2)	42	134	2 (2)	74	138	2 (2)	106	142	2 (2)	138
126	3 (-)	11	130	3 (-)	43	134	3 (-)	75	138	3 (-)	107	142	3 (-)	139
126	4 (-)	12	130	4 (-)	44	134	4 (-)	76	138	4 (-)	108	142	4 (-)	140
126	5 (3)	13	130	5 (3)	45	134	5 (3)	77	138	5 (3)	109	142	5 (3)	141
126	6 (4)	14	130	6 (4)	46	134	6 (4)	78	138	6 (4)	110	142	6 (4)	142
126	7 (-)	15	130	7 (-)	47	134	7 (-)	79	138	7 (-)	111	142	7 (-)	143
126	8 (-)	16	130	8 (-)	48	134	8 (-)	80	138	8 (-)	112	142	8 (-)	144
127	1 (1)	17	131	1 (1)	49	135	1 (1)	81	139	1 (1)	113	143	1 (1)	145
127	2 (2)	18	131	2 (2)	50	135	2 (2)	82	139	2 (2)	114	143	2 (2)	146
127	3 (-)	19	131	3 (-)	51	135	3 (-)	83	139	3 (-)	115	143	3 (-)	147
127	4 (-)	20	131	4 (-)	52	135	4 (-)	84	139	4 (-)	116	143	4 (-)	148
127	5 (3)	21	131	5 (3)	53	135	5 (3)	85	139	5 (3)	117	143	5 (3)	149
127	6 (4)	22	131	6 (4)	54	135	6 (4)	86	139	6 (4)	118	143	6 (4)	150
127	7 (-)	23	131	7 (-)	55	135	7 (-)	87	139	7 (-)	119	143	7 (-)	151
127	8 (-)	24	131	8 (-)	56	135	8 (-)	88	139	8 (-)	120	143	8 (-)	152
128	1 (1)	25	132	1 (1)	57	136	1 (1)	89	140	1 (1)	121	144	1 (1)	153
128	2 (2)	26	132	2 (2)	58	136	2 (2)	90	140	2 (2)	122	144	2 (2)	154
128	3 (-)	27	132	3 (-)	59	136	3 (-)	91	140	3 (-)	123	144	3 (-)	155
128	4 (-)	28	132	4 (-)	60	136	4 (-)	92	140	4 (-)	124	144	4 (-)	156
128	5 (3)	29	132	5 (3)	61	136	5 (3)	93	140	5 (3)	125	144	5 (3)	157
128	6 (4)	30	132	6 (4)	62	136	6 (4)	94	140	6 (4)	126	144	6 (4)	158
128	7 (-)	31	132	7 (-)	63	136	7 (-)	95	140	7 (-)	127	144	7 (-)	159
128	8 (-)	32	132	8 (-)	64	136	8 (-)	96	140	8 (-)	128	144	8 (-)	160

TABLE 7.11 - 40-592 2-Pin Breakout Versions - Daughter Board 6 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Switch Function	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
Isolation X156	89	176	1 (1)	1	180	1 (1)	33	184	1 (1)	65
Isolation X157	90	176	2 (2)	2	180	2 (2)	34	184	2 (2)	66
Isolation X158	91	176	3 (-)	3	180	3 (-)	35	184	3 (-)	67
Isolation X159	92	176	4 (-)	4	180	4 (-)	36	184	4 (-)	68
Isolation X160	93	176	5 (3)	5	180	5 (3)	37	184	5 (3)	69
Isolation X161	94	176	6 (4)	6	180	6 (4)	38	184	6 (4)	70
Isolation X162	95	176	7 (-)	7	180	7 (-)	39	184	7 (-)	71
Isolation X163	96	176	8 (-)	8	180	8 (-)	40	184	8 (-)	72
Isolation X164	97	177	1 (1)	9	181	1 (1)	41	185	1 (1)	73
Isolation X165	98	177	2 (2)	10	181	2 (2)	42	185	2 (2)	74
Isolation X166	99	177	3 (-)	11	181	3 (-)	43	185	3 (-)	75
Isolation X167	100	177	4 (-)	12	181	4 (-)	44	185	4 (-)	76
Isolation X168	101	177	5 (3)	13	181	5 (3)	45	185	5 (3)	77
Isolation X169	102	177	6 (4)	14	181	6 (4)	46	185	6 (4)	78
Isolation X170	103	177	7 (-)	15	181	7 (-)	47	185	7 (-)	79
Isolation X171	104	177	8 (-)	16	181	8 (-)	48	185	8 (-)	80
Isolation X172	105	178	1 (1)	17	182	1 (1)	49	186	1 (1)	81
Isolation X173	106	178	2 (2)	18	182	2 (2)	50	186	2 (2)	82
Isolation X174	107	178	3 (-)	19	182	3 (-)	51	186	3 (-)	83
Isolation X175	108	178	4 (-)	20	182	4 (-)	52	186	4 (-)	84
Isolation X176	109	178	5 (3)	21	182	5 (3)	53	186	5 (3)	85
Isolation X177	110	178	6 (4)	22	182	6 (4)	54	186	6 (4)	86
Isolation X178	111	178	7 (-)	23	182	7 (-)	55	186	7 (-)	87
Isolation X179	112	178	8 (-)	24	182	8 (-)	56	186	8 (-)	88
Isolation X180	113	179	1 (1)	25	183	1 (1)	57			
Isolation X181	114	179	2 (2)	26	183	2 (2)	58			
Isolation X182	115	179	3 (-)	27	183	3 (-)	59			
Isolation X183	116	179	4 (-)	28	183	4 (-)	60			
Isolation X184	117	179	5 (3)	29	183	5 (3)	61			
Isolation X185	118	179	6 (4)	30	183	6 (4)	62			
Isolation X186	119	179	7 (-)	31	183	7 (-)	63			
		179	8 (-)	32	183	8 (-)	64			

TABLE 7.12 - 40-592 2-Pin Breakout Versions - Mezzanine Board 6 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
156	1 (1)	1	160	1 (1)	33	164	1 (1)	65	168	1 (1)	97	172	1 (1)	129
156	2 (2)	2	160	2 (2)	34	164	2 (2)	66	168	2 (2)	98	172	2 (2)	130
156	3 (-)	3	160	3 (-)	35	164	3 (-)	67	168	3 (-)	99	172	3 (-)	131
156	4 (-)	4	160	4 (-)	36	164	4 (-)	68	168	4 (-)	100	172	4 (-)	132
156	5 (3)	5	160	5 (3)	37	164	5 (3)	69	168	5 (3)	101	172	5 (3)	133
156	6 (4)	6	160	6 (4)	38	164	6 (4)	70	168	6 (4)	102	172	6 (4)	134
156	7 (-)	7	160	7 (-)	39	164	7 (-)	71	168	7 (-)	103	172	7 (-)	135
156	8 (-)	8	160	8 (-)	40	164	8 (-)	72	168	8 (-)	104	172	8 (-)	136
157	1 (1)	9	161	1 (1)	41	165	1 (1)	73	169	1 (1)	105	173	1 (1)	137
157	2 (2)	10	161	2 (2)	42	165	2 (2)	74	169	2 (2)	106	173	2 (2)	138
157	3 (-)	11	161	3 (-)	43	165	3 (-)	75	169	3 (-)	107	173	3 (-)	139
157	4 (-)	12	161	4 (-)	44	165	4 (-)	76	169	4 (-)	108	173	4 (-)	140
157	5 (3)	13	161	5 (3)	45	165	5 (3)	77	169	5 (3)	109	173	5 (3)	141
157	6 (4)	14	161	6 (4)	46	165	6 (4)	78	169	6 (4)	110	173	6 (4)	142
157	7 (-)	15	161	7 (-)	47	165	7 (-)	79	169	7 (-)	111	173	7 (-)	143
157	8 (-)	16	161	8 (-)	48	165	8 (-)	80	169	8 (-)	112	173	8 (-)	144
158	1 (1)	17	162	1 (1)	49	166	1 (1)	81	170	1 (1)	113	174	1 (1)	145
158	2 (2)	18	162	2 (2)	50	166	2 (2)	82	170	2 (2)	114	174	2 (2)	146
158	3 (-)	19	162	3 (-)	51	166	3 (-)	83	170	3 (-)	115	174	3 (-)	147
158	4 (-)	20	162	4 (-)	52	166	4 (-)	84	170	4 (-)	116	174	4 (-)	148
158	5 (3)	21	162	5 (3)	53	166	5 (3)	85	170	5 (3)	117	174	5 (3)	149
158	6 (4)	22	162	6 (4)	54	166	6 (4)	86	170	6 (4)	118	174	6 (4)	150
158	7 (-)	23	162	7 (-)	55	166	7 (-)	87	170	7 (-)	119	174	7 (-)	151
158	8 (-)	24	162	8 (-)	56	166	8 (-)	88	170	8 (-)	120	174	8 (-)	152
159	1 (1)	25	163	1 (1)	57	167	1 (1)	89	171	1 (1)	121	175	1 (1)	153
159	2 (2)	26	163	2 (2)	58	167	2 (2)	90	171	2 (2)	122	175	2 (2)	154
159	3 (-)	27	163	3 (-)	59	167	3 (-)	91	171	3 (-)	123	175	3 (-)	155
159	4 (-)	28	163	4 (-)	60	167	4 (-)	92	171	4 (-)	124	175	4 (-)	156
159	5 (3)	29	163	5 (3)	61	167	5 (3)	93	171	5 (3)	125	175	5 (3)	157
159	6 (4)	30	163	6 (4)	62	167	6 (4)	94	171	6 (4)	126	175	6 (4)	158
159	7 (-)	31	163	7 (-)	63	167	7 (-)	95	171	7 (-)	127	175	7 (-)	159
159	8 (-)	32	163	8 (-)	64	167	8 (-)	96	171	8 (-)	128	175	8 (-)	160

TABLE 7.13 - 40-592 2-Pin Breakout Versions - Daughter Board 7 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Switch Function	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
Isolation X187	89	207	1 (1)	1	211	1 (1)	33	215	1 (1)	65
Isolation X188	90	207	2 (2)	2	211	2 (2)	34	215	2 (2)	66
Isolation X189	91	207	3 (-)	3	211	3 (-)	35	215	3 (-)	67
Isolation X190	92	207	4 (-)	4	211	4 (-)	36	215	4 (-)	68
Isolation X191	93	207	5 (3)	5	211	5 (3)	37	215	5 (3)	69
Isolation X192	94	207	6 (4)	6	211	6 (4)	38	215	6 (4)	70
Isolation X193	95	207	7 (-)	7	211	7 (-)	39	215	7 (-)	71
Isolation X194	96	207	8 (-)	8	211	8 (-)	40	215	8 (-)	72
Isolation X195	97	208	1 (1)	9	212	1 (1)	41	216	1 (1)	73
Isolation X196	98	208	2 (2)	10	212	2 (2)	42	216	2 (2)	74
Isolation X197	99	208	3 (-)	11	212	3 (-)	43	216	3 (-)	75
Isolation X198	100	208	4 (-)	12	212	4 (-)	44	216	4 (-)	76
Isolation X199	101	208	5 (3)	13	212	5 (3)	45	216	5 (3)	77
Isolation X200	102	208	6 (4)	14	212	6 (4)	46	216	6 (4)	78
Isolation X201	103	208	7 (-)	15	212	7 (-)	47	216	7 (-)	79
Isolation X202	104	208	8 (-)	16	212	8 (-)	48	216	8 (-)	80
Isolation X203	105	209	1 (1)	17	213	1 (1)	49	217	1 (1)	81
Isolation X204	106	209	2 (2)	18	213	2 (2)	50	217	2 (2)	82
Isolation X205	107	209	3 (-)	19	213	3 (-)	51	217	3 (-)	83
Isolation X206	108	209	4 (-)	20	213	4 (-)	52	217	4 (-)	84
Isolation X207	109	209	5 (3)	21	213	5 (3)	53	217	5 (3)	85
Isolation X208	110	209	6 (4)	22	213	6 (4)	54	217	6 (4)	86
Isolation X209	111	209	7 (-)	23	213	7 (-)	55	217	7 (-)	87
Isolation X210	112	209	8 (-)	24	213	8 (-)	56	217	8 (-)	88
Isolation X211	113	210	1 (1)	25	214	1 (1)	57			
Isolation X212	114	210	2 (2)	26	214	2 (2)	58			
Isolation X213	115	210	3 (-)	27	214	3 (-)	59			
Isolation X214	116	210	4 (-)	28	214	4 (-)	60			
Isolation X215	117	210	5 (3)	29	214	5 (3)	61			
Isolation X216	118	210	6 (4)	30	214	6 (4)	62			
Isolation X217	119	210	7 (-)	31	214	7 (-)	63			
		210	8 (-)	32	214	8 (-)	64			

TABLE 7.14 - 40-592 2-Pin Breakout Versions - Mezzanine Board 7 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
187	1 (1)	1	191	1 (1)	33	195	1 (1)	65	199	1 (1)	97	203	1 (1)	129
187	2 (2)	2	191	2 (2)	34	195	2 (2)	66	199	2 (2)	98	203	2 (2)	130
187	3 (-)	3	191	3 (-)	35	195	3 (-)	67	199	3 (-)	99	203	3 (-)	131
187	4 (-)	4	191	4 (-)	36	195	4 (-)	68	199	4 (-)	100	203	4 (-)	132
187	5 (3)	5	191	5 (3)	37	195	5 (3)	69	199	5 (3)	101	203	5 (3)	133
187	6 (4)	6	191	6 (4)	38	195	6 (4)	70	199	6 (4)	102	203	6 (4)	134
187	7 (-)	7	191	7 (-)	39	195	7 (-)	71	199	7 (-)	103	203	7 (-)	135
187	8 (-)	8	191	8 (-)	40	195	8 (-)	72	199	8 (-)	104	203	8 (-)	136
188	1 (1)	9	192	1 (1)	41	196	1 (1)	73	200	1 (1)	105	204	1 (1)	137
188	2 (2)	10	192	2 (2)	42	196	2 (2)	74	200	2 (2)	106	204	2 (2)	138
188	3 (-)	11	192	3 (-)	43	196	3 (-)	75	200	3 (-)	107	204	3 (-)	139
188	4 (-)	12	192	4 (-)	44	196	4 (-)	76	200	4 (-)	108	204	4 (-)	140
188	5 (3)	13	192	5 (3)	45	196	5 (3)	77	200	5 (3)	109	204	5 (3)	141
188	6 (4)	14	192	6 (4)	46	196	6 (4)	78	200	6 (4)	110	204	6 (4)	142
188	7 (-)	15	192	7 (-)	47	196	7 (-)	79	200	7 (-)	111	204	7 (-)	143
188	8 (-)	16	192	8 (-)	48	196	8 (-)	80	200	8 (-)	112	204	8 (-)	144
189	1 (1)	17	193	1 (1)	49	197	1 (1)	81	201	1 (1)	113	205	1 (1)	145
189	2 (2)	18	193	2 (2)	50	197	2 (2)	82	201	2 (2)	114	205	2 (2)	146
189	3 (-)	19	193	3 (-)	51	197	3 (-)	83	201	3 (-)	115	205	3 (-)	147
189	4 (-)	20	193	4 (-)	52	197	4 (-)	84	201	4 (-)	116	205	4 (-)	148
189	5 (3)	21	193	5 (3)	53	197	5 (3)	85	201	5 (3)	117	205	5 (3)	149
189	6 (4)	22	193	6 (4)	54	197	6 (4)	86	201	6 (4)	118	205	6 (4)	150
189	7 (-)	23	193	7 (-)	55	197	7 (-)	87	201	7 (-)	119	205	7 (-)	151
189	8 (-)	24	193	8 (-)	56	197	8 (-)	88	201	8 (-)	120	205	8 (-)	152
190	1 (1)	25	194	1 (1)	57	198	1 (1)	89	202	1 (1)	121	206	1 (1)	153
190	2 (2)	26	194	2 (2)	58	198	2 (2)	90	202	2 (2)	122	206	2 (2)	154
190	3 (-)	27	194	3 (-)	59	198	3 (-)	91	202	3 (-)	123	206	3 (-)	155
190	4 (-)	28	194	4 (-)	60	198	4 (-)	92	202	4 (-)	124	206	4 (-)	156
190	5 (3)	29	194	5 (3)	61	198	5 (3)	93	202	5 (3)	125	206	5 (3)	157
190	6 (4)	30	194	6 (4)	62	198	6 (4)	94	202	6 (4)	126	206	6 (4)	158
190	7 (-)	31	194	7 (-)	63	198	7 (-)	95	202	7 (-)	127	206	7 (-)	159
190	8 (-)	32	194	8 (-)	64	198	8 (-)	96	202	8 (-)	128	206	8 (-)	160

TABLE 7.15 - 40-592 2-Pin Breakout Versions - Daughter Board 8 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Switch Function	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
Isolation X218	89	238	1 (1)	1	242	1 (1)	33	246	1 (1)	65
Isolation X219	90	238	2 (2)	2	242	2 (2)	34	246	2 (2)	66
Isolation X220	91	238	3 (-)	3	242	3 (-)	35	246	3 (-)	67
Isolation X221	92	238	4 (-)	4	242	4 (-)	36	246	4 (-)	68
Isolation X222	93	238	5 (3)	5	242	5 (3)	37	246	5 (3)	69
Isolation X223	94	238	6 (4)	6	242	6 (4)	38	246	6 (4)	70
Isolation X224	95	238	7 (-)	7	242	7 (-)	39	246	7 (-)	71
Isolation X225	96	238	8 (-)	8	242	8 (-)	40	246	8 (-)	72
Isolation X226	97	239	1 (1)	9	243	1 (1)	41	247	1 (1)	73
Isolation X227	98	239	2 (2)	10	243	2 (2)	42	247	2 (2)	74
Isolation X228	99	239	3 (-)	11	243	3 (-)	43	247	3 (-)	75
Isolation X229	100	239	4 (-)	12	243	4 (-)	44	247	4 (-)	76
Isolation X230	101	239	5 (3)	13	243	5 (3)	45	247	5 (3)	77
Isolation X231	102	239	6 (4)	14	243	6 (4)	46	247	6 (4)	78
Isolation X232	103	239	7 (-)	15	243	7 (-)	47	247	7 (-)	79
Isolation X233	104	239	8 (-)	16	243	8 (-)	48	247	8 (-)	80
Isolation X234	105	240	1 (1)	17	244	1 (1)	49	248	1 (1)	81
Isolation X235	106	240	2 (2)	18	244	2 (2)	50	248	2 (2)	82
Isolation X236	107	240	3 (-)	19	244	3 (-)	51	248	3 (-)	83
Isolation X237	108	240	4 (-)	20	244	4 (-)	52	248	4 (-)	84
Isolation X238	109	240	5 (3)	21	244	5 (3)	53	248	5 (3)	85
Isolation X239	110	240	6 (4)	22	244	6 (4)	54	248	6 (4)	86
Isolation X240	111	240	7 (-)	23	244	7 (-)	55	248	7 (-)	87
Isolation X241	112	240	8 (-)	24	244	8 (-)	56	248	8 (-)	88
Isolation X242	113	241	1 (1)	25	245	1 (1)	57			
Isolation X243	114	241	2 (2)	26	245	2 (2)	58			
Isolation X244	115	241	3 (-)	27	245	3 (-)	59			
Isolation X245	116	241	4 (-)	28	245	4 (-)	60			
Isolation X246	117	241	5 (3)	29	245	5 (3)	61			
Isolation X247	118	241	6 (4)	30	245	6 (4)	62			
Isolation X248	119	241	7 (-)	31	245	7 (-)	63			
		241	8 (-)	32	245	8 (-)	64			

TABLE 7.16 - 40-592 2-Pin Breakout Versions - Mezzanine Board 8 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
218	1 (1)	1	222	1 (1)	33	226	1 (1)	65	230	1 (1)	97	234	1 (1)	129
218	2 (2)	2	222	2 (2)	34	226	2 (2)	66	230	2 (2)	98	234	2 (2)	130
218	3 (-)	3	222	3 (-)	35	226	3 (-)	67	230	3 (-)	99	234	3 (-)	131
218	4 (-)	4	222	4 (-)	36	226	4 (-)	68	230	4 (-)	100	234	4 (-)	132
218	5 (3)	5	222	5 (3)	37	226	5 (3)	69	230	5 (3)	101	234	5 (3)	133
218	6 (4)	6	222	6 (4)	38	226	6 (4)	70	230	6 (4)	102	234	6 (4)	134
218	7 (-)	7	222	7 (-)	39	226	7 (-)	71	230	7 (-)	103	234	7 (-)	135
218	8 (-)	8	222	8 (-)	40	226	8 (-)	72	230	8 (-)	104	234	8 (-)	136
219	1 (1)	9	223	1 (1)	41	227	1 (1)	73	231	1 (1)	105	235	1 (1)	137
219	2 (2)	10	223	2 (2)	42	227	2 (2)	74	231	2 (2)	106	235	2 (2)	138
219	3 (-)	11	223	3 (-)	43	227	3 (-)	75	231	3 (-)	107	235	3 (-)	139
219	4 (-)	12	223	4 (-)	44	227	4 (-)	76	231	4 (-)	108	235	4 (-)	140
219	5 (3)	13	223	5 (3)	45	227	5 (3)	77	231	5 (3)	109	235	5 (3)	141
219	6 (4)	14	223	6 (4)	46	227	6 (4)	78	231	6 (4)	110	235	6 (4)	142
219	7 (-)	15	223	7 (-)	47	227	7 (-)	79	231	7 (-)	111	235	7 (-)	143
219	8 (-)	16	223	8 (-)	48	227	8 (-)	80	231	8 (-)	112	235	8 (-)	144
220	1 (1)	17	224	1 (1)	49	228	1 (1)	81	232	1 (1)	113	236	1 (1)	145
220	2 (2)	18	224	2 (2)	50	228	2 (2)	82	232	2 (2)	114	236	2 (2)	146
220	3 (-)	19	224	3 (-)	51	228	3 (-)	83	232	3 (-)	115	236	3 (-)	147
220	4 (-)	20	224	4 (-)	52	228	4 (-)	84	232	4 (-)	116	236	4 (-)	148
220	5 (3)	21	224	5 (3)	53	228	5 (3)	85	232	5 (3)	117	236	5 (3)	149
220	6 (4)	22	224	6 (4)	54	228	6 (4)	86	232	6 (4)	118	236	6 (4)	150
220	7 (-)	23	224	7 (-)	55	228	7 (-)	87	232	7 (-)	119	236	7 (-)	151
220	8 (-)	24	224	8 (-)	56	228	8 (-)	88	232	8 (-)	120	236	8 (-)	152
221	1 (1)	25	225	1 (1)	57	229	1 (1)	89	233	1 (1)	121	237	1 (1)	153
221	2 (2)	26	225	2 (2)	58	229	2 (2)	90	233	2 (2)	122	237	2 (2)	154
221	3 (-)	27	225	3 (-)	59	229	3 (-)	91	233	3 (-)	123	237	3 (-)	155
221	4 (-)	28	225	4 (-)	60	229	4 (-)	92	233	4 (-)	124	237	4 (-)	156
221	5 (3)	29	225	5 (3)	61	229	5 (3)	93	233	5 (3)	125	237	5 (3)	157
221	6 (4)	30	225	6 (4)	62	229	6 (4)	94	233	6 (4)	126	237	6 (4)	158
221	7 (-)	31	225	7 (-)	63	229	7 (-)	95	233	7 (-)	127	237	7 (-)	159
221	8 (-)	32	225	8 (-)	64	229	8 (-)	96	233	8 (-)	128	237	8 (-)	160

TABLE 7.17 - 40-592 3-Pin Breakout Versions - Daughter Board 1 Relay Look-Up Table

Switch Function	Relay no.	Switch Function	Relay no.	Switch Function	Relay no.	Switch Function	Relay no.
Isolation X1.1	21	Isolation X6.1	26	Isolation X11.1	31	Isolation X16.1	36
Breakout X1.2	41	Breakout X6.2	46	Breakout X11.2	51	Breakout X16.2	56
Breakout X1.3	1	Breakout X6.3	6	Breakout X11.3	11	Breakout X16.3	16
Isolation X2.1	22	Isolation X7.1	27	Isolation X12.1	32	Isolation X17.1	37
Breakout X2.2	42	Breakout X7.2	47	Breakout X12.2	52	Breakout X17.2	57
Breakout X2.3	2	Breakout X7.3	7	Breakout X12.3	12	Breakout X17.3	17
Isolation X3.1	23	Isolation X8.1	28	Isolation X13.1	33	Isolation X18.1	38
Breakout X3.2	43	Breakout X8.2	48	Breakout X13.2	53	Breakout X18.2	58
Breakout X3.3	3	Breakout X8.3	8	Breakout X13.3	13	Breakout X18.3	18
Isolation X4.1	24	Isolation X9.1	29	Isolation X14.1	34	Isolation X19.1	39
Breakout X4.2	44	Breakout X9.2	49	Breakout X14.2	54	Breakout X19.2	59
Breakout X4.3	4	Breakout X9.3	9	Breakout X14.3	14	Breakout X19.3	19
Isolation X5.1	25	Isolation X10.1	30	Isolation X15.1	35	Isolation X20.1	40
Breakout X5.2	45	Breakout X10.2	50	Breakout X15.2	55	Breakout X20.2	60
Breakout X5.3	5	Breakout X10.3	10	Breakout X15.3	15	Breakout X20.3	20

TABLE 7.18 - 40-592 3-Pin Breakout Versions - Mezzanine Board 1 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
1	1 (1)	1	5	1 (1)	33	9	1 (1)	65	13	1 (1)	97	17	1 (1)	129
1	2 (2)	2	5	2 (2)	34	9	2 (2)	66	13	2 (2)	98	17	2 (2)	130
1	3 (-)	3	5	3 (-)	35	9	3 (-)	67	13	3 (-)	99	17	3 (-)	131
1	4 (-)	4	5	4 (-)	36	9	4 (-)	68	13	4 (-)	100	17	4 (-)	132
1	5 (3)	5	5	5 (3)	37	9	5 (3)	69	13	5 (3)	101	17	5 (3)	133
1	6 (4)	6	5	6 (4)	38	9	6 (4)	70	13	6 (4)	102	17	6 (4)	134
1	7 (-)	7	5	7 (-)	39	9	7 (-)	71	13	7 (-)	103	17	7 (-)	135
1	8 (-)	8	5	8 (-)	40	9	8 (-)	72	13	8 (-)	104	17	8 (-)	136
2	1 (1)	9	6	1 (1)	41	10	1 (1)	73	14	1 (1)	105	18	1 (1)	137
2	2 (2)	10	6	2 (2)	42	10	2 (2)	74	14	2 (2)	106	18	2 (2)	138
2	3 (-)	11	6	3 (-)	43	10	3 (-)	75	14	3 (-)	107	18	3 (-)	139
2	4 (-)	12	6	4 (-)	44	10	4 (-)	76	14	4 (-)	108	18	4 (-)	140
2	5 (3)	13	6	5 (3)	45	10	5 (3)	77	14	5 (3)	109	18	5 (3)	141
2	6 (4)	14	6	6 (4)	46	10	6 (4)	78	14	6 (4)	110	18	6 (4)	142
2	7 (-)	15	6	7 (-)	47	10	7 (-)	79	14	7 (-)	111	18	7 (-)	143
2	8 (-)	16	6	8 (-)	48	10	8 (-)	80	14	8 (-)	112	18	8 (-)	144
3	1 (1)	17	7	1 (1)	49	11	1 (1)	81	15	1 (1)	113	19	1 (1)	145
3	2 (2)	18	7	2 (2)	50	11	2 (2)	82	15	2 (2)	114	19	2 (2)	146
3	3 (-)	19	7	3 (-)	51	11	3 (-)	83	15	3 (-)	115	19	3 (-)	147
3	4 (-)	20	7	4 (-)	52	11	4 (-)	84	15	4 (-)	116	19	4 (-)	148
3	5 (3)	21	7	5 (3)	53	11	5 (3)	85	15	5 (3)	117	19	5 (3)	149
3	6 (4)	22	7	6 (4)	54	11	6 (4)	86	15	6 (4)	118	19	6 (4)	150
3	7 (-)	23	7	7 (-)	55	11	7 (-)	87	15	7 (-)	119	19	7 (-)	151
3	8 (-)	24	7	8 (-)	56	11	8 (-)	88	15	8 (-)	120	19	8 (-)	152
4	1 (1)	25	8	1 (1)	57	12	1 (1)	89	16	1 (1)	121	20	1 (1)	153
4	2 (2)	26	8	2 (2)	58	12	2 (2)	90	16	2 (2)	122	20	2 (2)	154
4	3 (-)	27	8	3 (-)	59	12	3 (-)	91	16	3 (-)	123	20	3 (-)	155
4	4 (-)	28	8	4 (-)	60	12	4 (-)	92	16	4 (-)	124	20	4 (-)	156
4	5 (3)	29	8	5 (3)	61	12	5 (3)	93	16	5 (3)	125	20	5 (3)	157
4	6 (4)	30	8	6 (4)	62	12	6 (4)	94	16	6 (4)	126	20	6 (4)	158
4	7 (-)	31	8	7 (-)	63	12	7 (-)	95	16	7 (-)	127	20	7 (-)	159
4	8 (-)	32	8	8 (-)	64	12	8 (-)	96	16	8 (-)	128	20	8 (-)	160

TABLE 7.19 - 40-592 3-Pin Breakout Versions - Daughter Board 2 Relay Look-Up Table

Switch Function	Relay no.	Switch Function	Relay no.	Switch Function	Relay no.	Switch Function	Relay no.
Isolation X21.1	21	Isolation X26.1	26	Isolation X31.1	31	Isolation X36.1	36
Breakout X21.2	41	Breakout X26.2	46	Breakout X31.2	51	Breakout X36.2	56
Breakout X21.3	1	Breakout X26.3	6	Breakout X31.3	11	Breakout X36.3	16
Isolation X22.1	22	Isolation X27.1	27	Isolation X32.1	32	Isolation X37.1	37
Breakout X22.2	42	Breakout X27.2	47	Breakout X32.2	52	Breakout X37.2	57
Breakout X22.3	2	Breakout X27.3	7	Breakout X32.3	12	Breakout X37.3	17
Isolation X23.1	23	Isolation X28.1	28	Isolation X33.1	33	Isolation X38.1	38
Breakout X23.2	43	Breakout X28.2	48	Breakout X33.2	53	Breakout X38.2	58
Breakout X23.3	3	Breakout X28.3	8	Breakout X33.3	13	Breakout X38.3	18
Isolation X24.1	24	Isolation X29.1	29	Isolation X34.1	34	Isolation X39.1	39
Breakout X24.2	44	Breakout X29.2	49	Breakout X34.2	54	Breakout X39.2	59
Breakout X24.3	4	Breakout X29.3	9	Breakout X34.3	14	Breakout X39.3	19
Isolation X25.1	25	Isolation X30.1	30	Isolation X35.1	35	Isolation X40.1	40
Breakout X25.2	45	Breakout X30.2	50	Breakout X35.2	55	Breakout X40.2	60
Breakout X25.3	5	Breakout X30.3	10	Breakout X35.3	15	Breakout X40.3	20

TABLE 7.20 - 40-592 3-Pin Breakout Versions - Mezzanine Board 2 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
21	1 (1)	1	25	1 (1)	33	29	1 (1)	65	33	1 (1)	97	37	1 (1)	129
21	2 (2)	2	25	2 (2)	34	29	2 (2)	66	33	2 (2)	98	37	2 (2)	130
21	3 (-)	3	25	3 (-)	35	29	3 (-)	67	33	3 (-)	99	37	3 (-)	131
21	4 (-)	4	25	4 (-)	36	29	4 (-)	68	33	4 (-)	100	37	4 (-)	132
21	5 (3)	5	25	5 (3)	37	29	5 (3)	69	33	5 (3)	101	37	5 (3)	133
21	6 (4)	6	25	6 (4)	38	29	6 (4)	70	33	6 (4)	102	37	6 (4)	134
21	7 (-)	7	25	7 (-)	39	29	7 (-)	71	33	7 (-)	103	37	7 (-)	135
21	8 (-)	8	25	8 (-)	40	29	8 (-)	72	33	8 (-)	104	37	8 (-)	136
22	1 (1)	9	26	1 (1)	41	30	1 (1)	73	34	1 (1)	105	38	1 (1)	137
22	2 (2)	10	26	2 (2)	42	30	2 (2)	74	34	2 (2)	106	38	2 (2)	138
22	3 (-)	11	26	3 (-)	43	30	3 (-)	75	34	3 (-)	107	38	3 (-)	139
22	4 (-)	12	26	4 (-)	44	30	4 (-)	76	34	4 (-)	108	38	4 (-)	140
22	5 (3)	13	26	5 (3)	45	30	5 (3)	77	34	5 (3)	109	38	5 (3)	141
22	6 (4)	14	26	6 (4)	46	30	6 (4)	78	34	6 (4)	110	38	6 (4)	142
22	7 (-)	15	26	7 (-)	47	30	7 (-)	79	34	7 (-)	111	38	7 (-)	143
22	8 (-)	16	26	8 (-)	48	30	8 (-)	80	34	8 (-)	112	38	8 (-)	144
23	1 (1)	17	27	1 (1)	49	31	1 (1)	81	35	1 (1)	113	39	1 (1)	145
23	2 (2)	18	27	2 (2)	50	31	2 (2)	82	35	2 (2)	114	39	2 (2)	146
23	3 (-)	19	27	3 (-)	51	31	3 (-)	83	35	3 (-)	115	39	3 (-)	147
23	4 (-)	20	27	4 (-)	52	31	4 (-)	84	35	4 (-)	116	39	4 (-)	148
23	5 (3)	21	27	5 (3)	53	31	5 (3)	85	35	5 (3)	117	39	5 (3)	149
23	6 (4)	22	27	6 (4)	54	31	6 (4)	86	35	6 (4)	118	39	6 (4)	150
23	7 (-)	23	27	7 (-)	55	31	7 (-)	87	35	7 (-)	119	39	7 (-)	151
23	8 (-)	24	27	8 (-)	56	31	8 (-)	88	35	8 (-)	120	39	8 (-)	152
24	1 (1)	25	28	1 (1)	57	32	1 (1)	89	36	1 (1)	121	40	1 (1)	153
24	2 (2)	26	28	2 (2)	58	32	2 (2)	90	36	2 (2)	122	40	2 (2)	154
24	3 (-)	27	28	3 (-)	59	32	3 (-)	91	36	3 (-)	123	40	3 (-)	155
24	4 (-)	28	28	4 (-)	60	32	4 (-)	92	36	4 (-)	124	40	4 (-)	156
24	5 (3)	29	28	5 (3)	61	32	5 (3)	93	36	5 (3)	125	40	5 (3)	157
24	6 (4)	30	28	6 (4)	62	32	6 (4)	94	36	6 (4)	126	40	6 (4)	158
24	7 (-)	31	28	7 (-)	63	32	7 (-)	95	36	7 (-)	127	40	7 (-)	159
24	8 (-)	32	28	8 (-)	64	32	8 (-)	96	36	8 (-)	128	40	8 (-)	160

TABLE 7.21 - 40-592 3-Pin Breakout Versions - Daughter Board 3 Relay Look-Up Table

Switch Function	Relay no.	Switch Function	Relay no.	Switch Function	Relay no.	Switch Function	Relay no.
Isolation X41.1	21	Isolation X46.1	26	Isolation X51.1	31	Isolation X56.1	36
Breakout X41.2	41	Breakout X46.2	46	Breakout X51.2	51	Breakout X56.2	56
Breakout X41.3	1	Breakout X46.3	6	Breakout X51.3	11	Breakout X56.3	16
Isolation X42.1	22	Isolation X47.1	27	Isolation X52.1	32	Isolation X57.1	37
Breakout X42.2	42	Breakout X47.2	47	Breakout X52.2	52	Breakout X57.2	57
Breakout X42.3	2	Breakout X47.3	7	Breakout X52.3	12	Breakout X57.3	17
Isolation X43.1	23	Isolation X48.1	28	Isolation X53.1	33	Isolation X58.1	38
Breakout X43.2	43	Breakout X48.2	48	Breakout X53.2	53	Breakout X58.2	58
Breakout X43.3	3	Breakout X48.3	8	Breakout X53.3	13	Breakout X58.3	18
Isolation X44.1	24	Isolation X49.1	29	Isolation X54.1	34	Isolation X59.1	39
Breakout X44.2	44	Breakout X49.2	49	Breakout X54.2	54	Breakout X59.2	59
Breakout X44.3	4	Breakout X49.3	9	Breakout X54.3	14	Breakout X59.3	19
Isolation X45.1	25	Isolation X50.1	30	Isolation X55.1	35	Isolation X60.1	40
Breakout X45.2	45	Breakout X50.2	50	Breakout X55.2	55	Breakout X60.2	60
Breakout X45.3	5	Breakout X50.3	10	Breakout X55.3	15	Breakout X60.3	20

TABLE 7.22 - 40-592 3-Pin Breakout Versions - Mezzanine Board 3 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
41	1 (1)	1	45	1 (1)	33	49	1 (1)	65	53	1 (1)	97	57	1 (1)	129
41	2 (2)	2	45	2 (2)	34	49	2 (2)	66	53	2 (2)	98	57	2 (2)	130
41	3 (-)	3	45	3 (-)	35	49	3 (-)	67	53	3 (-)	99	57	3 (-)	131
41	4 (-)	4	45	4 (-)	36	49	4 (-)	68	53	4 (-)	100	57	4 (-)	132
41	5 (3)	5	45	5 (3)	37	49	5 (3)	69	53	5 (3)	101	57	5 (3)	133
41	6 (4)	6	45	6 (4)	38	49	6 (4)	70	53	6 (4)	102	57	6 (4)	134
41	7 (-)	7	45	7 (-)	39	49	7 (-)	71	53	7 (-)	103	57	7 (-)	135
41	8 (-)	8	45	8 (-)	40	49	8 (-)	72	53	8 (-)	104	57	8 (-)	136
42	1 (1)	9	46	1 (1)	41	50	1 (1)	73	54	1 (1)	105	58	1 (1)	137
42	2 (2)	10	46	2 (2)	42	50	2 (2)	74	54	2 (2)	106	58	2 (2)	138
42	3 (-)	11	46	3 (-)	43	50	3 (-)	75	54	3 (-)	107	58	3 (-)	139
42	4 (-)	12	46	4 (-)	44	50	4 (-)	76	54	4 (-)	108	58	4 (-)	140
42	5 (3)	13	46	5 (3)	45	50	5 (3)	77	54	5 (3)	109	58	5 (3)	141
42	6 (4)	14	46	6 (4)	46	50	6 (4)	78	54	6 (4)	110	58	6 (4)	142
42	7 (-)	15	46	7 (-)	47	50	7 (-)	79	54	7 (-)	111	58	7 (-)	143
42	8 (-)	16	46	8 (-)	48	50	8 (-)	80	54	8 (-)	112	58	8 (-)	144
43	1 (1)	17	47	1 (1)	49	51	1 (1)	81	55	1 (1)	113	59	1 (1)	145
43	2 (2)	18	47	2 (2)	50	51	2 (2)	82	55	2 (2)	114	59	2 (2)	146
43	3 (-)	19	47	3 (-)	51	51	3 (-)	83	55	3 (-)	115	59	3 (-)	147
43	4 (-)	20	47	4 (-)	52	51	4 (-)	84	55	4 (-)	116	59	4 (-)	148
43	5 (3)	21	47	5 (3)	53	51	5 (3)	85	55	5 (3)	117	59	5 (3)	149
43	6 (4)	22	47	6 (4)	54	51	6 (4)	86	55	6 (4)	118	59	6 (4)	150
43	7 (-)	23	47	7 (-)	55	51	7 (-)	87	55	7 (-)	119	59	7 (-)	151
43	8 (-)	24	47	8 (-)	56	51	8 (-)	88	55	8 (-)	120	59	8 (-)	152
44	1 (1)	25	48	1 (1)	57	52	1 (1)	89	56	1 (1)	121	60	1 (1)	153
44	2 (2)	26	48	2 (2)	58	52	2 (2)	90	56	2 (2)	122	60	2 (2)	154
44	3 (-)	27	48	3 (-)	59	52	3 (-)	91	56	3 (-)	123	60	3 (-)	155
44	4 (-)	28	48	4 (-)	60	52	4 (-)	92	56	4 (-)	124	60	4 (-)	156
44	5 (3)	29	48	5 (3)	61	52	5 (3)	93	56	5 (3)	125	60	5 (3)	157
44	6 (4)	30	48	6 (4)	62	52	6 (4)	94	56	6 (4)	126	60	6 (4)	158
44	7 (-)	31	48	7 (-)	63	52	7 (-)	95	56	7 (-)	127	60	7 (-)	159
44	8 (-)	32	48	8 (-)	64	52	8 (-)	96	56	8 (-)	128	60	8 (-)	160

TABLE 7.23 - 40-592 3-Pin Breakout Versions - Daughter Board 4 Relay Look-Up Table

Switch Function	Relay no.	Switch Function	Relay no.	Switch Function	Relay no.	Switch Function	Relay no.
Isolation X61.1	21	Isolation X66.1	26	Isolation X71.1	31	Isolation X76.1	36
Breakout X61.2	41	Breakout X66.2	46	Breakout X71.2	51	Breakout X76.2	56
Breakout X61.3	1	Breakout X66.3	6	Breakout X71.3	11	Breakout X76.3	16
Isolation X62.1	22	Isolation X67.1	27	Isolation X72.1	32	Isolation X77.1	37
Breakout X62.2	42	Breakout X67.2	47	Breakout X72.2	52	Breakout X77.2	57
Breakout X62.3	2	Breakout X67.3	7	Breakout X72.3	12	Breakout X77.3	17
Isolation X63.1	23	Isolation X68.1	28	Isolation X73.1	33	Isolation X78.1	38
Breakout X63.2	43	Breakout X68.2	48	Breakout X73.2	53	Breakout X78.2	58
Breakout X63.3	3	Breakout X68.3	8	Breakout X73.3	13	Breakout X78.3	18
Isolation X64.1	24	Isolation X69.1	29	Isolation X74.1	34	Isolation X79.1	39
Breakout X64.2	44	Breakout X69.2	49	Breakout X74.2	54	Breakout X79.2	59
Breakout X64.3	4	Breakout X69.3	9	Breakout X74.3	14	Breakout X79.3	19
Isolation X65.1	25	Isolation X70.1	30	Isolation X75.1	35	Isolation X80.1	40
Breakout X65.2	45	Breakout X70.2	50	Breakout X75.2	55	Breakout X80.2	60
Breakout X65.3	5	Breakout X70.3	10	Breakout X75.3	15	Breakout X80.3	20

TABLE 7.24 - 40-592 3-Pin Breakout Versions - Mezzanine Board 4 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
61	1 (1)	1	65	1 (1)	33	69	1 (1)	65	73	1 (1)	97	77	1 (1)	129
61	2 (2)	2	65	2 (2)	34	69	2 (2)	66	73	2 (2)	98	77	2 (2)	130
61	3 (-)	3	65	3 (-)	35	69	3 (-)	67	73	3 (-)	99	77	3 (-)	131
61	4 (-)	4	65	4 (-)	36	69	4 (-)	68	73	4 (-)	100	77	4 (-)	132
61	5 (3)	5	65	5 (3)	37	69	5 (3)	69	73	5 (3)	101	77	5 (3)	133
61	6 (4)	6	65	6 (4)	38	69	6 (4)	70	73	6 (4)	102	77	6 (4)	134
61	7 (-)	7	65	7 (-)	39	69	7 (-)	71	73	7 (-)	103	77	7 (-)	135
61	8 (-)	8	65	8 (-)	40	69	8 (-)	72	73	8 (-)	104	77	8 (-)	136
62	1 (1)	9	66	1 (1)	41	70	1 (1)	73	74	1 (1)	105	78	1 (1)	137
62	2 (2)	10	66	2 (2)	42	70	2 (2)	74	74	2 (2)	106	78	2 (2)	138
62	3 (-)	11	66	3 (-)	43	70	3 (-)	75	74	3 (-)	107	78	3 (-)	139
62	4 (-)	12	66	4 (-)	44	70	4 (-)	76	74	4 (-)	108	78	4 (-)	140
62	5 (3)	13	66	5 (3)	45	70	5 (3)	77	74	5 (3)	109	78	5 (3)	141
62	6 (4)	14	66	6 (4)	46	70	6 (4)	78	74	6 (4)	110	78	6 (4)	142
62	7 (-)	15	66	7 (-)	47	70	7 (-)	79	74	7 (-)	111	78	7 (-)	143
62	8 (-)	16	66	8 (-)	48	70	8 (-)	80	74	8 (-)	112	78	8 (-)	144
63	1 (1)	17	67	1 (1)	49	71	1 (1)	81	75	1 (1)	113	79	1 (1)	145
63	2 (2)	18	67	2 (2)	50	71	2 (2)	82	75	2 (2)	114	79	2 (2)	146
63	3 (-)	19	67	3 (-)	51	71	3 (-)	83	75	3 (-)	115	79	3 (-)	147
63	4 (-)	20	67	4 (-)	52	71	4 (-)	84	75	4 (-)	116	79	4 (-)	148
63	5 (3)	21	67	5 (3)	53	71	5 (3)	85	75	5 (3)	117	79	5 (3)	149
63	6 (4)	22	67	6 (4)	54	71	6 (4)	86	75	6 (4)	118	79	6 (4)	150
63	7 (-)	23	67	7 (-)	55	71	7 (-)	87	75	7 (-)	119	79	7 (-)	151
63	8 (-)	24	67	8 (-)	56	71	8 (-)	88	75	8 (-)	120	79	8 (-)	152
64	1 (1)	25	68	1 (1)	57	72	1 (1)	89	76	1 (1)	121	80	1 (1)	153
64	2 (2)	26	68	2 (2)	58	72	2 (2)	90	76	2 (2)	122	80	2 (2)	154
64	3 (-)	27	68	3 (-)	59	72	3 (-)	91	76	3 (-)	123	80	3 (-)	155
64	4 (-)	28	68	4 (-)	60	72	4 (-)	92	76	4 (-)	124	80	4 (-)	156
64	5 (3)	29	68	5 (3)	61	72	5 (3)	93	76	5 (3)	125	80	5 (3)	157
64	6 (4)	30	68	6 (4)	62	72	6 (4)	94	76	6 (4)	126	80	6 (4)	158
64	7 (-)	31	68	7 (-)	63	72	7 (-)	95	76	7 (-)	127	80	7 (-)	159
64	8 (-)	32	68	8 (-)	64	72	8 (-)	96	76	8 (-)	128	80	8 (-)	160

TABLE 7.25 - 40-592 3-Pin Breakout Versions - Daughter Board 5 Relay Look-Up Table

Switch Function	Relay no.	Switch Function	Relay no.	Switch Function	Relay no.	Switch Function	Relay no.
Isolation X81.1	21	Isolation X86.1	26	Isolation X91.1	31	Isolation X96.1	36
Breakout X81.2	41	Breakout X86.2	46	Breakout X91.2	51	Breakout X96.2	56
Breakout X81.3	1	Breakout X86.3	6	Breakout X91.3	11	Breakout X96.3	16
Isolation X82.1	22	Isolation X87.1	27	Isolation X92.1	32	Isolation X97.1	37
Breakout X82.2	42	Breakout X87.2	47	Breakout X92.2	52	Breakout X97.2	57
Breakout X82.3	2	Breakout X87.3	7	Breakout X92.3	12	Breakout X97.3	17
Isolation X83.1	23	Isolation X88.1	28	Isolation X93.1	33	Isolation X98.1	38
Breakout X83.2	43	Breakout X88.2	48	Breakout X93.2	53	Breakout X98.2	58
Breakout X83.3	3	Breakout X88.3	8	Breakout X93.3	13	Breakout X98.3	18
Isolation X84.1	24	Isolation X89.1	29	Isolation X94.1	34	Isolation X99.1	39
Breakout X84.2	44	Breakout X89.2	49	Breakout X94.2	54	Breakout X99.2	59
Breakout X84.3	4	Breakout X89.3	9	Breakout X94.3	14	Breakout X99.3	19
Isolation X85.1	25	Isolation X90.1	30	Isolation X95.1	35	Isolation X100.1	40
Breakout X85.2	45	Breakout X90.2	50	Breakout X95.2	55	Breakout X100.2	60
Breakout X85.3	5	Breakout X90.3	10	Breakout X95.3	15	Breakout X100.3	20

TABLE 7.26 - 40-592 3-Pin Breakout Versions - Mezzanine Board 5 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
81	1 (1)	1	85	1 (1)	33	89	1 (1)	65	93	1 (1)	97	97	1 (1)	129
81	2 (2)	2	85	2 (2)	34	89	2 (2)	66	93	2 (2)	98	97	2 (2)	130
81	3 (-)	3	85	3 (-)	35	89	3 (-)	67	93	3 (-)	99	97	3 (-)	131
81	4 (-)	4	85	4 (-)	36	89	4 (-)	68	93	4 (-)	100	97	4 (-)	132
81	5 (3)	5	85	5 (3)	37	89	5 (3)	69	93	5 (3)	101	97	5 (3)	133
81	6 (4)	6	85	6 (4)	38	89	6 (4)	70	93	6 (4)	102	97	6 (4)	134
81	7 (-)	7	85	7 (-)	39	89	7 (-)	71	93	7 (-)	103	97	7 (-)	135
81	8 (-)	8	85	8 (-)	40	89	8 (-)	72	93	8 (-)	104	97	8 (-)	136
82	1 (1)	9	86	1 (1)	41	90	1 (1)	73	94	1 (1)	105	98	1 (1)	137
82	2 (2)	10	86	2 (2)	42	90	2 (2)	74	94	2 (2)	106	98	2 (2)	138
82	3 (-)	11	86	3 (-)	43	90	3 (-)	75	94	3 (-)	107	98	3 (-)	139
82	4 (-)	12	86	4 (-)	44	90	4 (-)	76	94	4 (-)	108	98	4 (-)	140
82	5 (3)	13	86	5 (3)	45	90	5 (3)	77	94	5 (3)	109	98	5 (3)	141
82	6 (4)	14	86	6 (4)	46	90	6 (4)	78	94	6 (4)	110	98	6 (4)	142
82	7 (-)	15	86	7 (-)	47	90	7 (-)	79	94	7 (-)	111	98	7 (-)	143
82	8 (-)	16	86	8 (-)	48	90	8 (-)	80	94	8 (-)	112	98	8 (-)	144
83	1 (1)	17	87	1 (1)	49	91	1 (1)	81	95	1 (1)	113	99	1 (1)	145
83	2 (2)	18	87	2 (2)	50	91	2 (2)	82	95	2 (2)	114	99	2 (2)	146
83	3 (-)	19	87	3 (-)	51	91	3 (-)	83	95	3 (-)	115	99	3 (-)	147
83	4 (-)	20	87	4 (-)	52	91	4 (-)	84	95	4 (-)	116	99	4 (-)	148
83	5 (3)	21	87	5 (3)	53	91	5 (3)	85	95	5 (3)	117	99	5 (3)	149
83	6 (4)	22	87	6 (4)	54	91	6 (4)	86	95	6 (4)	118	99	6 (4)	150
83	7 (-)	23	87	7 (-)	55	91	7 (-)	87	95	7 (-)	119	99	7 (-)	151
83	8 (-)	24	87	8 (-)	56	91	8 (-)	88	95	8 (-)	120	99	8 (-)	152
84	1 (1)	25	88	1 (1)	57	92	1 (1)	89	96	1 (1)	121	100	1 (1)	153
84	2 (2)	26	88	2 (2)	58	92	2 (2)	90	96	2 (2)	122	100	2 (2)	154
84	3 (-)	27	88	3 (-)	59	92	3 (-)	91	96	3 (-)	123	100	3 (-)	155
84	4 (-)	28	88	4 (-)	60	92	4 (-)	92	96	4 (-)	124	100	4 (-)	156
84	5 (3)	29	88	5 (3)	61	92	5 (3)	93	96	5 (3)	125	100	5 (3)	157
84	6 (4)	30	88	6 (4)	62	92	6 (4)	94	96	6 (4)	126	100	6 (4)	158
84	7 (-)	31	88	7 (-)	63	92	7 (-)	95	96	7 (-)	127	100	7 (-)	159
84	8 (-)	32	88	8 (-)	64	92	8 (-)	96	96	8 (-)	128	100	8 (-)	160

TABLE 7.27 - 40-592 3-Pin Breakout Versions - Daughter Board 6 Relay Look-Up Table

Switch Function	Relay no.	Switch Function	Relay no.	Switch Function	Relay no.	Switch Function	Relay no.
Isolation X101.1	21	Isolation X106.1	26	Isolation X111.1	31	Isolation X116.1	36
Breakout X101.2	41	Breakout X106.2	46	Breakout X111.2	51	Breakout X116.2	56
Breakout X101.3	1	Breakout X106.3	6	Breakout X111.3	11	Breakout X116.3	16
Isolation X102.1	22	Isolation X107.1	27	Isolation X112.1	32	Isolation X117.1	37
Breakout X102.2	42	Breakout X107.2	47	Breakout X112.2	52	Breakout X117.2	57
Breakout X102.3	2	Breakout X107.3	7	Breakout X112.3	12	Breakout X117.3	17
Isolation X103.1	23	Isolation X108.1	28	Isolation X113.1	33	Isolation X118.1	38
Breakout X103.2	43	Breakout X108.2	48	Breakout X113.2	53	Breakout X118.2	58
Breakout X103.3	3	Breakout X108.3	8	Breakout X113.3	13	Breakout X118.3	18
Isolation X104.1	24	Isolation X109.1	29	Isolation X114.1	34	Isolation X119.1	39
Breakout X104.2	44	Breakout X109.2	49	Breakout X114.2	54	Breakout X119.2	59
Breakout X104.3	4	Breakout X109.3	9	Breakout X114.3	14	Breakout X119.3	19
Isolation X105.1	25	Isolation X110.1	30	Isolation X115.1	35	Isolation X120.1	40
Breakout X105.2	45	Breakout X110.2	50	Breakout X115.2	55	Breakout X120.2	60
Breakout X105.3	5	Breakout X110.3	10	Breakout X115.3	15	Breakout X120.3	20

TABLE 7.28 - 40-592 3-Pin Breakout Versions - Mezzanine Board 6 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
101	1 (1)	1	105	1 (1)	33	109	1 (1)	65	113	1 (1)	97	117	1 (1)	129
101	2 (2)	2	105	2 (2)	34	109	2 (2)	66	113	2 (2)	98	117	2 (2)	130
101	3 (-)	3	105	3 (-)	35	109	3 (-)	67	113	3 (-)	99	117	3 (-)	131
101	4 (-)	4	105	4 (-)	36	109	4 (-)	68	113	4 (-)	100	117	4 (-)	132
101	5 (3)	5	105	5 (3)	37	109	5 (3)	69	113	5 (3)	101	117	5 (3)	133
101	6 (4)	6	105	6 (4)	38	109	6 (4)	70	113	6 (4)	102	117	6 (4)	134
101	7 (-)	7	105	7 (-)	39	109	7 (-)	71	113	7 (-)	103	117	7 (-)	135
101	8 (-)	8	105	8 (-)	40	109	8 (-)	72	113	8 (-)	104	117	8 (-)	136
102	1 (1)	9	106	1 (1)	41	110	1 (1)	73	114	1 (1)	105	118	1 (1)	137
102	2 (2)	10	106	2 (2)	42	110	2 (2)	74	114	2 (2)	106	118	2 (2)	138
102	3 (-)	11	106	3 (-)	43	110	3 (-)	75	114	3 (-)	107	118	3 (-)	139
102	4 (-)	12	106	4 (-)	44	110	4 (-)	76	114	4 (-)	108	118	4 (-)	140
102	5 (3)	13	106	5 (3)	45	110	5 (3)	77	114	5 (3)	109	118	5 (3)	141
102	6 (4)	14	106	6 (4)	46	110	6 (4)	78	114	6 (4)	110	118	6 (4)	142
102	7 (-)	15	106	7 (-)	47	110	7 (-)	79	114	7 (-)	111	118	7 (-)	143
102	8 (-)	16	106	8 (-)	48	110	8 (-)	80	114	8 (-)	112	118	8 (-)	144
103	1 (1)	17	107	1 (1)	49	111	1 (1)	81	115	1 (1)	113	119	1 (1)	145
103	2 (2)	18	107	2 (2)	50	111	2 (2)	82	115	2 (2)	114	119	2 (2)	146
103	3 (-)	19	107	3 (-)	51	111	3 (-)	83	115	3 (-)	115	119	3 (-)	147
103	4 (-)	20	107	4 (-)	52	111	4 (-)	84	115	4 (-)	116	119	4 (-)	148
103	5 (3)	21	107	5 (3)	53	111	5 (3)	85	115	5 (3)	117	119	5 (3)	149
103	6 (4)	22	107	6 (4)	54	111	6 (4)	86	115	6 (4)	118	119	6 (4)	150
103	7 (-)	23	107	7 (-)	55	111	7 (-)	87	115	7 (-)	119	119	7 (-)	151
103	8 (-)	24	107	8 (-)	56	111	8 (-)	88	115	8 (-)	120	119	8 (-)	152
104	1 (1)	25	108	1 (1)	57	112	1 (1)	89	116	1 (1)	121	120	1 (1)	153
104	2 (2)	26	108	2 (2)	58	112	2 (2)	90	116	2 (2)	122	120	2 (2)	154
104	3 (-)	27	108	3 (-)	59	112	3 (-)	91	116	3 (-)	123	120	3 (-)	155
104	4 (-)	28	108	4 (-)	60	112	4 (-)	92	116	4 (-)	124	120	4 (-)	156
104	5 (3)	29	108	5 (3)	61	112	5 (3)	93	116	5 (3)	125	120	5 (3)	157
104	6 (4)	30	108	6 (4)	62	112	6 (4)	94	116	6 (4)	126	120	6 (4)	158
104	7 (-)	31	108	7 (-)	63	112	7 (-)	95	116	7 (-)	127	120	7 (-)	159
104	8 (-)	32	108	8 (-)	64	112	8 (-)	96	116	8 (-)	128	120	8 (-)	160

TABLE 7.29 - 40-592 3-Pin Breakout Versions - Daughter Board 7 Relay Look-Up Table

Switch Function	Relay no.	Switch Function	Relay no.	Switch Function	Relay no.	Switch Function	Relay no.
Isolation X121.1	21	Isolation X126.1	26	Isolation X131.1	31	Isolation X136.1	36
Breakout X121.2	41	Breakout X126.2	46	Breakout X131.2	51	Breakout X136.2	56
Breakout X121.3	1	Breakout X126.3	6	Breakout X131.3	11	Breakout X136.3	16
Isolation X122.1	22	Isolation X127.1	27	Isolation X132.1	32	Isolation X137.1	37
Breakout X122.2	42	Breakout X127.2	47	Breakout X132.2	52	Breakout X137.2	57
Breakout X122.3	2	Breakout X127.3	7	Breakout X132.3	12	Breakout X137.3	17
Isolation X123.1	23	Isolation X128.1	28	Isolation X133.1	33	Isolation X138.1	38
Breakout X123.2	43	Breakout X128.2	48	Breakout X133.2	53	Breakout X138.2	58
Breakout X123.3	3	Breakout X128.3	8	Breakout X133.3	13	Breakout X138.3	18
Isolation X124.1	24	Isolation X129.1	29	Isolation X134.1	34	Isolation X139.1	39
Breakout X124.2	44	Breakout X129.2	49	Breakout X134.2	54	Breakout X139.2	59
Breakout X124.3	4	Breakout X129.3	9	Breakout X134.3	14	Breakout X139.3	19
Isolation X125.1	25	Isolation X130.1	30	Isolation X135.1	35	Isolation X140.1	40
Breakout X125.2	45	Breakout X130.2	50	Breakout X135.2	55	Breakout X140.2	60
Breakout X125.3	5	Breakout X130.3	10	Breakout X135.3	15	Breakout X140.3	20

TABLE 7.30 - 40-592 3-Pin Breakout Versions - Mezzanine Board 7 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
121	1 (1)	1	125	1 (1)	33	129	1 (1)	65	133	1 (1)	97	137	1 (1)	129
121	2 (2)	2	125	2 (2)	34	129	2 (2)	66	133	2 (2)	98	137	2 (2)	130
121	3 (-)	3	125	3 (-)	35	129	3 (-)	67	133	3 (-)	99	137	3 (-)	131
121	4 (-)	4	125	4 (-)	36	129	4 (-)	68	133	4 (-)	100	137	4 (-)	132
121	5 (3)	5	125	5 (3)	37	129	5 (3)	69	133	5 (3)	101	137	5 (3)	133
121	6 (4)	6	125	6 (4)	38	129	6 (4)	70	133	6 (4)	102	137	6 (4)	134
121	7 (-)	7	125	7 (-)	39	129	7 (-)	71	133	7 (-)	103	137	7 (-)	135
121	8 (-)	8	125	8 (-)	40	129	8 (-)	72	133	8 (-)	104	137	8 (-)	136
122	1 (1)	9	126	1 (1)	41	130	1 (1)	73	134	1 (1)	105	138	1 (1)	137
122	2 (2)	10	126	2 (2)	42	130	2 (2)	74	134	2 (2)	106	138	2 (2)	138
122	3 (-)	11	126	3 (-)	43	130	3 (-)	75	134	3 (-)	107	138	3 (-)	139
122	4 (-)	12	126	4 (-)	44	130	4 (-)	76	134	4 (-)	108	138	4 (-)	140
122	5 (3)	13	126	5 (3)	45	130	5 (3)	77	134	5 (3)	109	138	5 (3)	141
122	6 (4)	14	126	6 (4)	46	130	6 (4)	78	134	6 (4)	110	138	6 (4)	142
122	7 (-)	15	126	7 (-)	47	130	7 (-)	79	134	7 (-)	111	138	7 (-)	143
122	8 (-)	16	126	8 (-)	48	130	8 (-)	80	134	8 (-)	112	138	8 (-)	144
123	1 (1)	17	127	1 (1)	49	131	1 (1)	81	135	1 (1)	113	139	1 (1)	145
123	2 (2)	18	127	2 (2)	50	131	2 (2)	82	135	2 (2)	114	139	2 (2)	146
123	3 (-)	19	127	3 (-)	51	131	3 (-)	83	135	3 (-)	115	139	3 (-)	147
123	4 (-)	20	127	4 (-)	52	131	4 (-)	84	135	4 (-)	116	139	4 (-)	148
123	5 (3)	21	127	5 (3)	53	131	5 (3)	85	135	5 (3)	117	139	5 (3)	149
123	6 (4)	22	127	6 (4)	54	131	6 (4)	86	135	6 (4)	118	139	6 (4)	150
123	7 (-)	23	127	7 (-)	55	131	7 (-)	87	135	7 (-)	119	139	7 (-)	151
123	8 (-)	24	127	8 (-)	56	131	8 (-)	88	135	8 (-)	120	139	8 (-)	152
124	1 (1)	25	128	1 (1)	57	132	1 (1)	89	136	1 (1)	121	140	1 (1)	153
124	2 (2)	26	128	2 (2)	58	132	2 (2)	90	136	2 (2)	122	140	2 (2)	154
124	3 (-)	27	128	3 (-)	59	132	3 (-)	91	136	3 (-)	123	140	3 (-)	155
124	4 (-)	28	128	4 (-)	60	132	4 (-)	92	136	4 (-)	124	140	4 (-)	156
124	5 (3)	29	128	5 (3)	61	132	5 (3)	93	136	5 (3)	125	140	5 (3)	157
124	6 (4)	30	128	6 (4)	62	132	6 (4)	94	136	6 (4)	126	140	6 (4)	158
124	7 (-)	31	128	7 (-)	63	132	7 (-)	95	136	7 (-)	127	140	7 (-)	159
124	8 (-)	32	128	8 (-)	64	132	8 (-)	96	136	8 (-)	128	140	8 (-)	160

TABLE 7.31 - 40-592 3-Pin Breakout Versions - Daughter Board 8 Relay Look-Up Table

Switch Function	Relay no.	Switch Function	Relay no.	Switch Function	Relay no.	Switch Function	Relay no.
Isolation X141.1	21	Isolation X146.1	26	Isolation X151.1	31	Isolation X156.1	36
Breakout X141.2	41	Breakout X146.2	46	Breakout X151.2	51	Breakout X156.2	56
Breakout X141.3	1	Breakout X146.3	6	Breakout X151.3	11	Breakout X156.3	16
Isolation X142.1	22	Isolation X147.1	27	Isolation X152.1	32	Isolation X157.1	37
Breakout X142.2	42	Breakout X147.2	47	Breakout X152.2	52	Breakout X157.2	57
Breakout X142.3	2	Breakout X147.3	7	Breakout X152.3	12	Breakout X157.3	17
Isolation X143.1	23	Isolation X148.1	28	Isolation X153.1	33	Isolation X158.1	38
Breakout X143.2	43	Breakout X148.2	48	Breakout X153.2	53	Breakout X158.2	58
Breakout X143.3	3	Breakout X148.3	8	Breakout X153.3	13	Breakout X158.3	18
Isolation X144.1	24	Isolation X149.1	29	Isolation X154.1	34	Isolation X159.1	39
Breakout X144.2	44	Breakout X149.2	49	Breakout X154.2	54	Breakout X159.2	59
Breakout X144.3	4	Breakout X149.3	9	Breakout X154.3	14	Breakout X159.3	19
Isolation X145.1	25	Isolation X150.1	30	Isolation X155.1	35	Isolation X160.1	40
Breakout X145.2	45	Breakout X150.2	50	Breakout X155.2	55	Breakout X160.2	60
Breakout X145.3	5	Breakout X150.3	10	Breakout X155.3	15	Breakout X160.3	20

TABLE 7.32 - 40-592 3-Pin Breakout Versions - Mezzanine Board 8 Relay Look-Up Table

(Note: the crosspoint names in brackets apply to versions with a 4-wire Y-bus)

Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.	Crosspoint X	Crosspoint Y	Relay no.
141	1 (1)	1	145	1 (1)	33	149	1 (1)	65	153	1 (1)	97	157	1 (1)	129
141	2 (2)	2	145	2 (2)	34	149	2 (2)	66	153	2 (2)	98	157	2 (2)	130
141	3 (-)	3	145	3 (-)	35	149	3 (-)	67	153	3 (-)	99	157	3 (-)	131
141	4 (-)	4	145	4 (-)	36	149	4 (-)	68	153	4 (-)	100	157	4 (-)	132
141	5 (3)	5	145	5 (3)	37	149	5 (3)	69	153	5 (3)	101	157	5 (3)	133
141	6 (4)	6	145	6 (4)	38	149	6 (4)	70	153	6 (4)	102	157	6 (4)	134
141	7 (-)	7	145	7 (-)	39	149	7 (-)	71	153	7 (-)	103	157	7 (-)	135
141	8 (-)	8	145	8 (-)	40	149	8 (-)	72	153	8 (-)	104	157	8 (-)	136
142	1 (1)	9	146	1 (1)	41	150	1 (1)	73	154	1 (1)	105	158	1 (1)	137
142	2 (2)	10	146	2 (2)	42	150	2 (2)	74	154	2 (2)	106	158	2 (2)	138
142	3 (-)	11	146	3 (-)	43	150	3 (-)	75	154	3 (-)	107	158	3 (-)	139
142	4 (-)	12	146	4 (-)	44	150	4 (-)	76	154	4 (-)	108	158	4 (-)	140
142	5 (3)	13	146	5 (3)	45	150	5 (3)	77	154	5 (3)	109	158	5 (3)	141
142	6 (4)	14	146	6 (4)	46	150	6 (4)	78	154	6 (4)	110	158	6 (4)	142
142	7 (-)	15	146	7 (-)	47	150	7 (-)	79	154	7 (-)	111	158	7 (-)	143
142	8 (-)	16	146	8 (-)	48	150	8 (-)	80	154	8 (-)	112	158	8 (-)	144
143	1 (1)	17	147	1 (1)	49	151	1 (1)	81	155	1 (1)	113	159	1 (1)	145
143	2 (2)	18	147	2 (2)	50	151	2 (2)	82	155	2 (2)	114	159	2 (2)	146
143	3 (-)	19	147	3 (-)	51	151	3 (-)	83	155	3 (-)	115	159	3 (-)	147
143	4 (-)	20	147	4 (-)	52	151	4 (-)	84	155	4 (-)	116	159	4 (-)	148
143	5 (3)	21	147	5 (3)	53	151	5 (3)	85	155	5 (3)	117	159	5 (3)	149
143	6 (4)	22	147	6 (4)	54	151	6 (4)	86	155	6 (4)	118	159	6 (4)	150
143	7 (-)	23	147	7 (-)	55	151	7 (-)	87	155	7 (-)	119	159	7 (-)	151
143	8 (-)	24	147	8 (-)	56	151	8 (-)	88	155	8 (-)	120	159	8 (-)	152
144	1 (1)	25	148	1 (1)	57	152	1 (1)	89	156	1 (1)	121	160	1 (1)	153
144	2 (2)	26	148	2 (2)	58	152	2 (2)	90	156	2 (2)	122	160	2 (2)	154
144	3 (-)	27	148	3 (-)	59	152	3 (-)	91	156	3 (-)	123	160	3 (-)	155
144	4 (-)	28	148	4 (-)	60	152	4 (-)	92	156	4 (-)	124	160	4 (-)	156
144	5 (3)	29	148	5 (3)	61	152	5 (3)	93	156	5 (3)	125	160	5 (3)	157
144	6 (4)	30	148	6 (4)	62	152	6 (4)	94	156	6 (4)	126	160	6 (4)	158
144	7 (-)	31	148	7 (-)	63	152	7 (-)	95	156	7 (-)	127	160	7 (-)	159
144	8 (-)	32	148	8 (-)	64	152	8 (-)	96	156	8 (-)	128	160	8 (-)	160

PCB LAYOUT DIAGRAMS

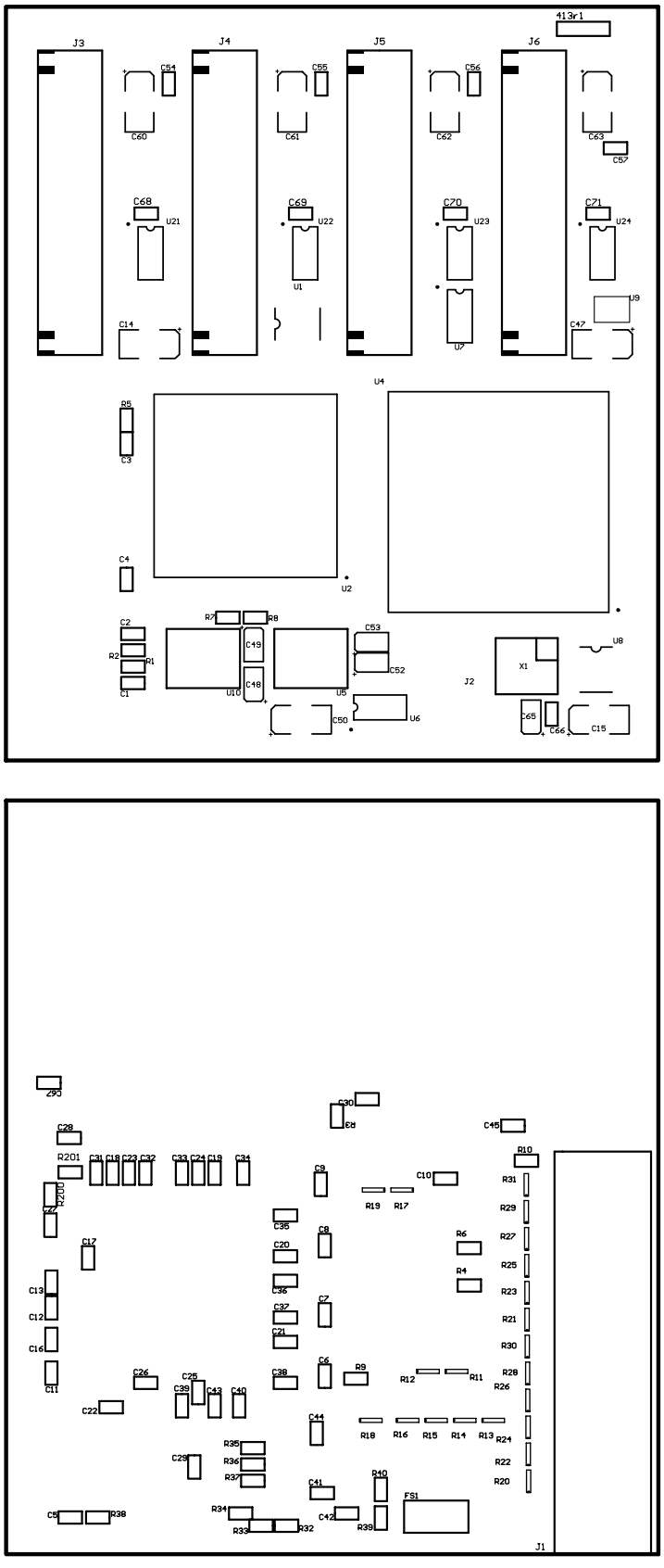


Figure 8.1 - 4-Slot BRIC Backplane: Component Layout

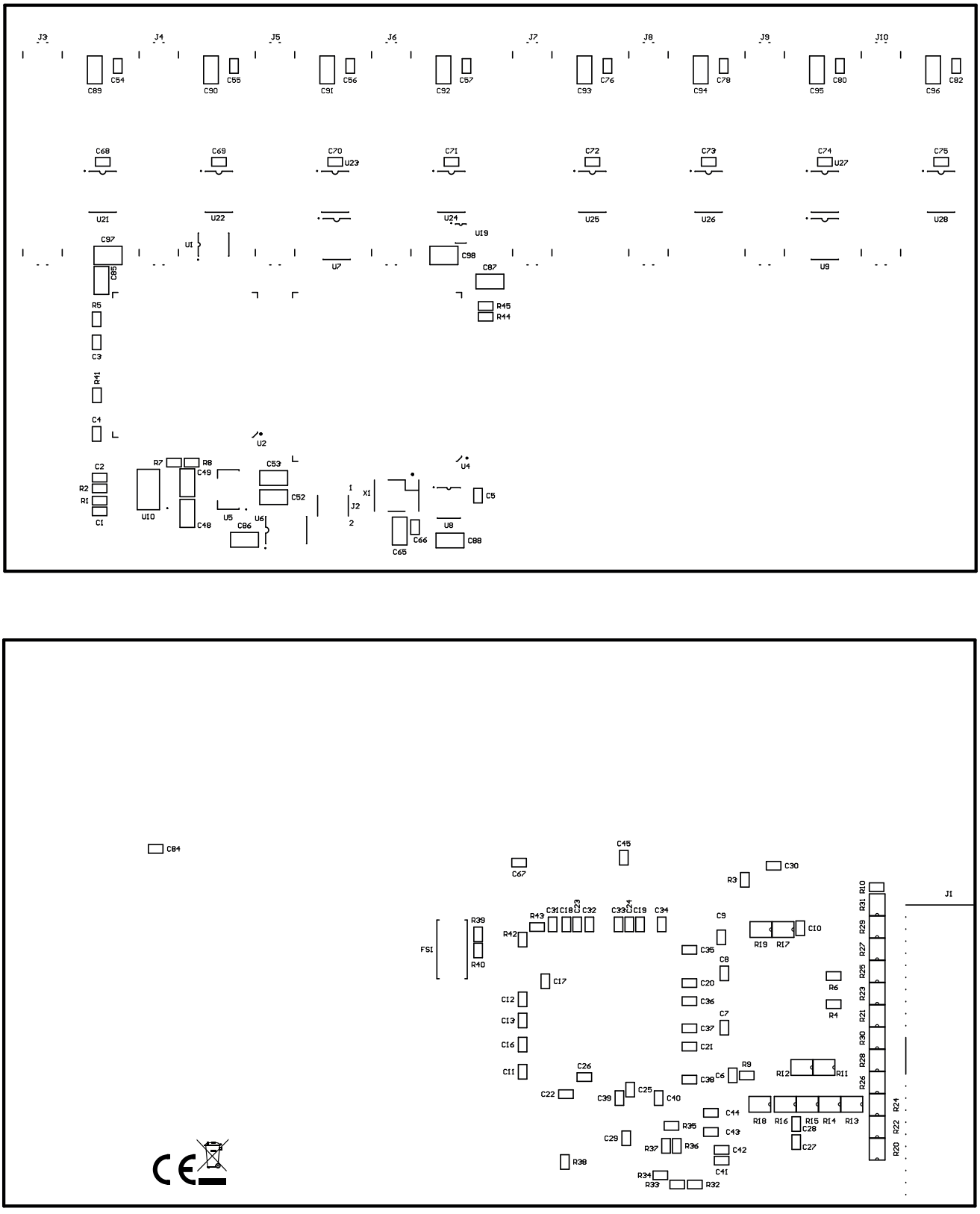


Figure 8.2 - 8-Slot BRIC Backplane: Component Layout

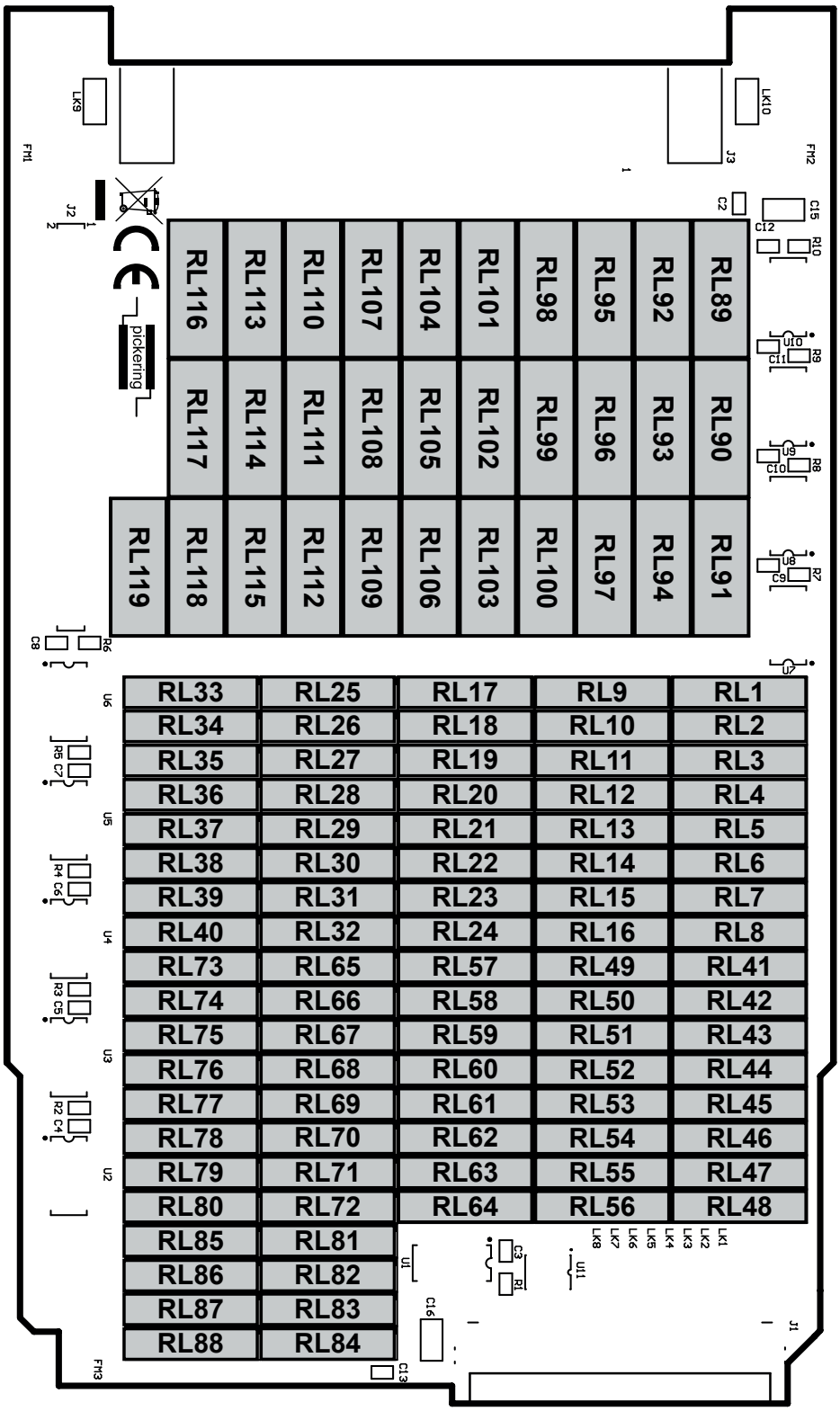


Figure 8.3 - 31 x 8 Daughtercard: Component Layout

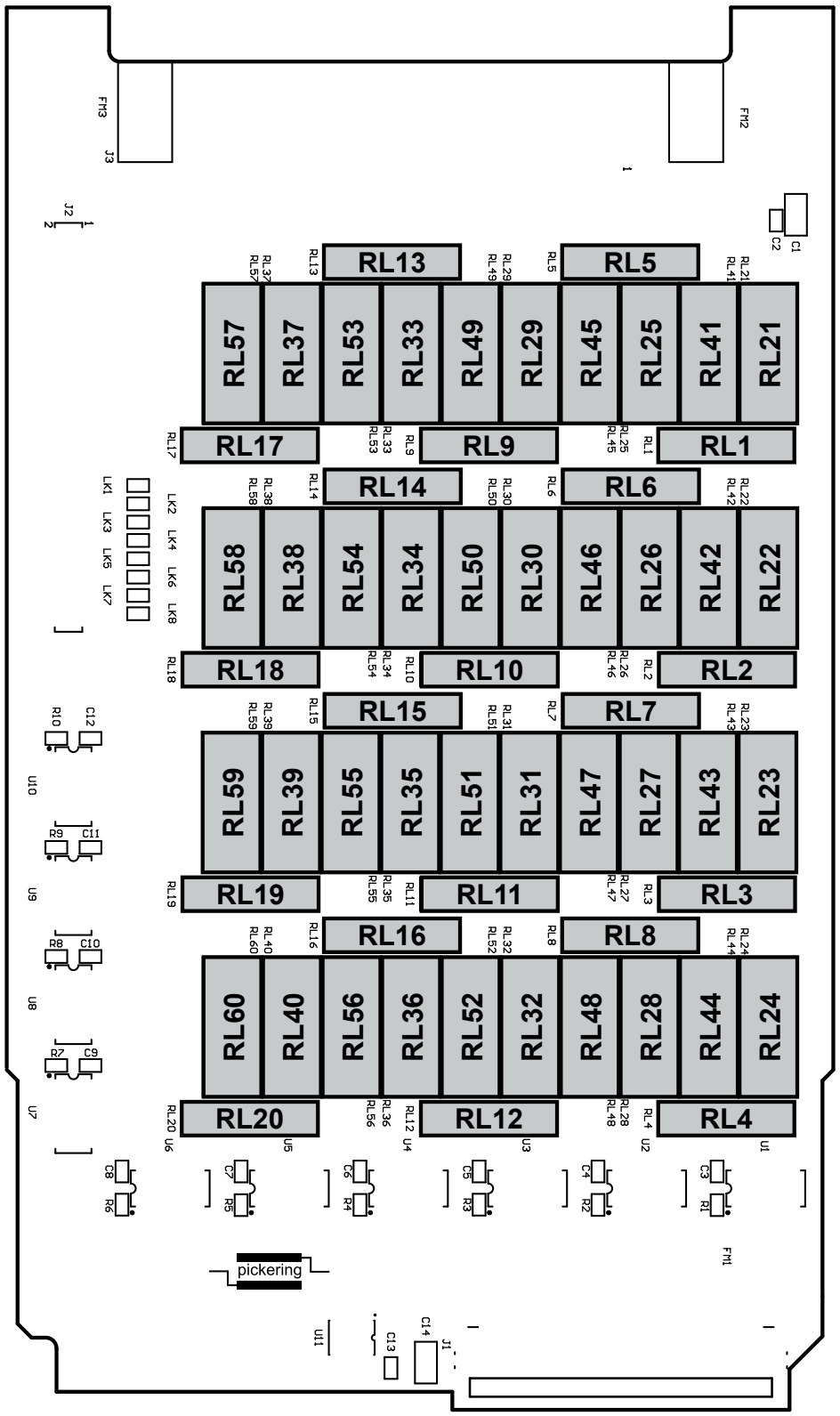


Figure 8.4 - 20 x 8 Daughtercard: Component Layout

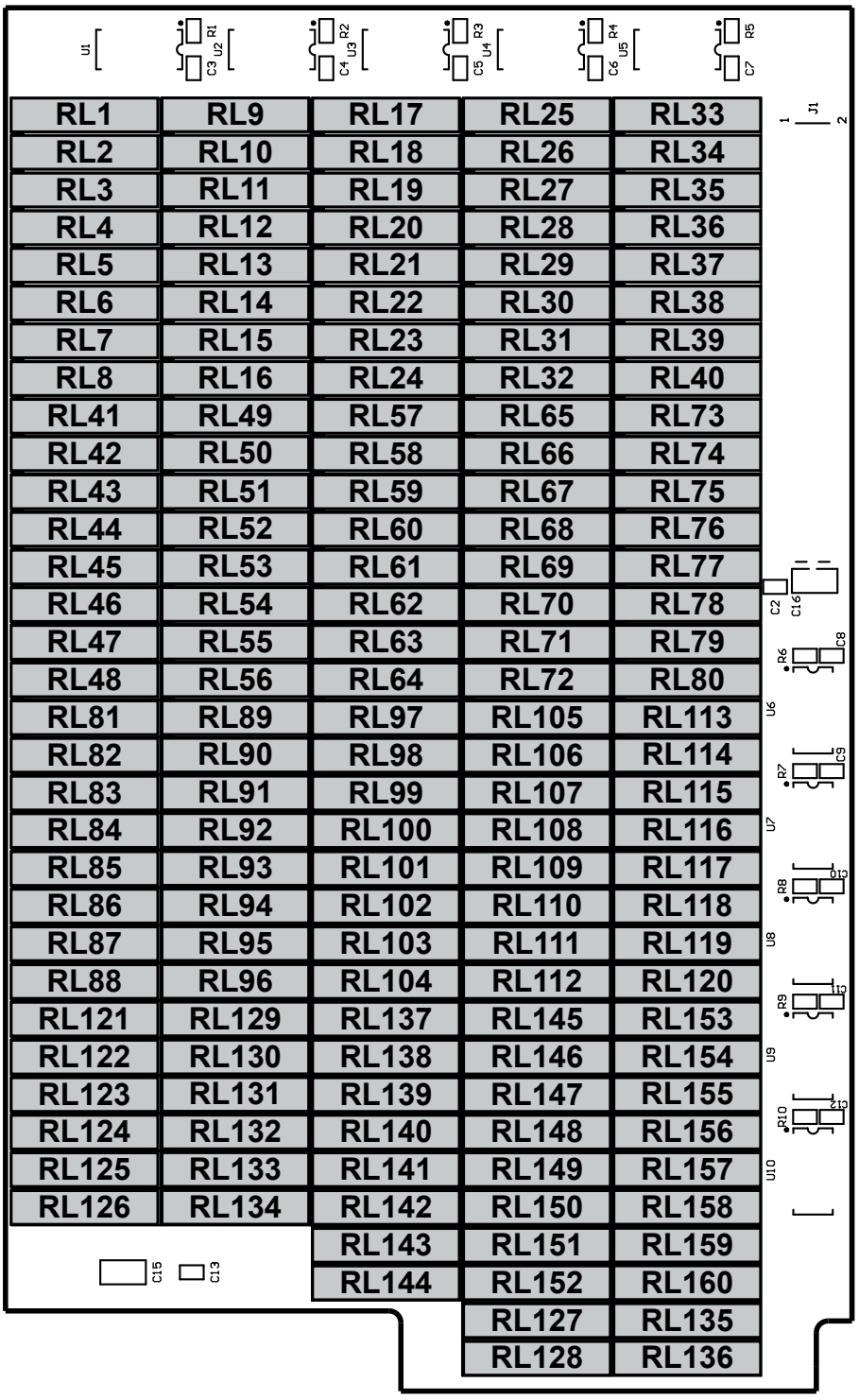


Figure 8.5 - Mezzanine Daughtercard: Component Layout

CARD REMOVAL FROM BRIC

The following procedure should be followed for the extraction of a matrix relay card from the 40-592 BRIC module. The card extraction handle supplied with the module is required for this process as shown in Figure 7.5. It should be noted that individual matrix cards can be removed from the BRIC sub-chassis without removing the entire BRIC from the host chassis.

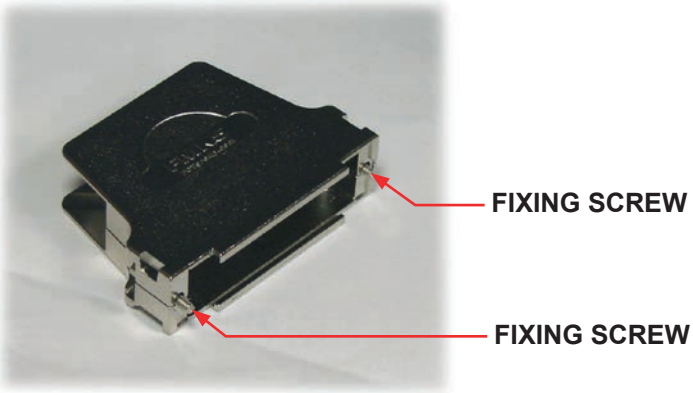


Figure 7.5 - Extraction Handle for 40-592 Relay Cards

1. Power down the host chassis and remove the cabling from the front panel of the matrix relay card to be changed. In this example daughter card number 3 is removed, but the same procedure applies to all other relay cards.

2. Slacken the two screws securing the relay card into the BRIC sub-chassis as highlighted in Figure 7.6 below. These screws are captive so don't have to be fully removed but need to be loose (and still retained by the front panel) to allow extraction of the relay card.

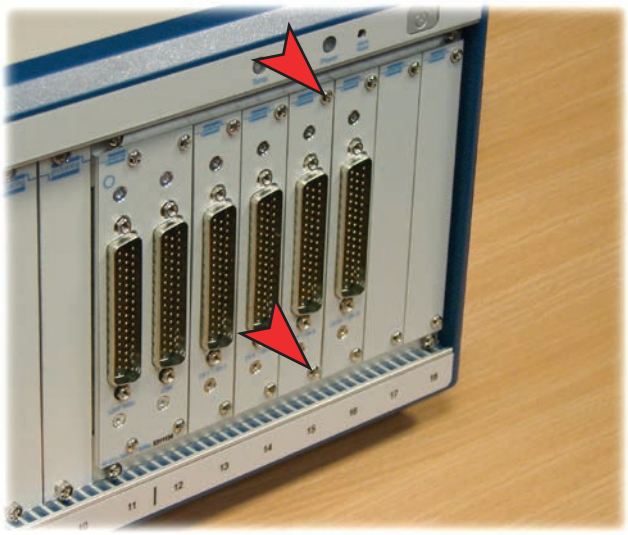


Figure 7.6 - Locations of The Relay Card's Fixing Screws

3. Fit the card extraction handle over the connector of the relay card to be removed as shown in Figure 7.7. Fasten the fixing screws of the extraction handle to the screwlocks of the D-type connector.



Figure 7.7 - Relay Card With Extraction Handle Fitted

4. Carefully pull the relay card free from the BRIC chassis using the extraction handle as shown in Figure 7.8. Once the card is removed the extraction handle can be unscrewed from the relay card's connector.

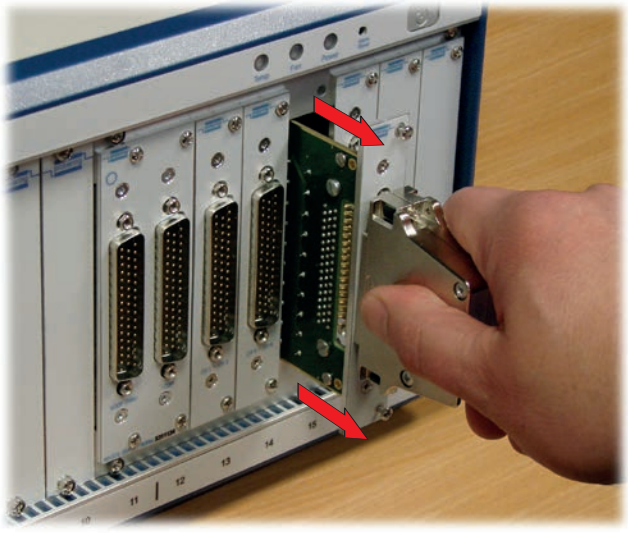


Figure 7.8 - Removing The Relay Card

CARD REPLACEMENT



CAUTION

THE BACKPLANE CONNECTORS ARE NOT PROVIDED WITH LOCATING GUIDES. IN THE FOLLOWING PROCEDURE IS IT IMPORTANT THAT THE RELAY CARD CONNECTOR IS ALIGNED WITH THE BACKPLANE CONNECTOR BEFORE THE MODULE IS PUSHED FULLY HOME.

Insert the relay card into the appropriate slot. Slowly push the card into the backplane, but DO NOT force the card into the backplane connector. It may take a certain amount of manoeuvring to locate the card's connector into the backplane connector. If the relay card connector does not locate correctly into the backplane connector a certain amount of freeplay allows the card to be manoeuvred up and down and from side to side until the connectors are aligned. Once the connectors are correctly aligned push the relay card home .

Repeat this procedure for all removed relay cards.

Refit the front panels, and loosely secure with the securing screws, but DO NOT tighten any screws until everything is refitted.

(Note: There is 0.5 mm approx of "free play" on the relay card between the back plane and the front panel. When tightening the front panel screws the inserted relay card could be pulled out about 0.5 mm. This does not effect the interconnection on the backplane)

Tighten all screws.

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP